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FINAL WORK PLAN SITE 19 AND SITE 27 NSWC INDIAN HEAD MD  
2/1/2011  
SHAW ENVIRONMENTAL, INC.



*FINAL*  
WORK PLAN

**REMOVAL ACTIONS AT SITES 19 AND 27  
NAVAL SUPPORT FACILITY, INDIAN HEAD  
INDIAN HEAD, MARYLAND**

CONTRACT No. N62470-08-D-1007

**Prepared for:**

**Naval Facilities Engineering Command Washington**  
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TASK ORDER JU46  
SHAW PROJECT NO. 140662

**FEBRUARY 2011**

# Work Plan

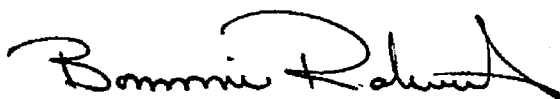
## Removal Actions at Sites 19 and 27

### Naval Support Facility, Indian Head

### Indian Head, Maryland

## SIGNATURE PAGE

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Bonnie Roberts  
Scientist

February 17, 2011

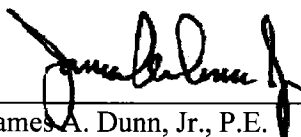
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Appendix B    Accident Prevention Plan

Appendix C    Erosion and Sediment Control Plan

Appendix D    Laboratory Accreditation Letter

Appendix E    Project Schedule

## ***LIST OF ACRONYMS AND ABBREVIATIONS***

APP	Accident Prevention Plan
bgs	Below Ground Surface
CFR	Code of Federal Regulations
COC	Chain of Custody
CTO	Contract Task Order
DRO	Diesel Range Organic
EE/CA	Engineering Evaluation/Cost Analysis
EPA	Environmental Protection Agency
E&S	Erosion and Sediment
FEAD	Facilities Engineering and Acquisition Division
GRO	Gasoline Range Organic
IR	Installation Restoration
MDE	Maryland Department of the Environment
mg/kg	Milligrams per Kilogram
ml	milliliter
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NAVFAC	Naval Facilities Engineering Command
NELAC	National Environmental Laboratory Accreditation Conference
NG	Nitroglycerine
NIRIS	Naval Installation Restoration Information Solution
NSF-IH	Naval Support Facility Indian Head
PBA	Project Business Associate
PCBs	Polychlorinated Biphenyls
PQCP	Program Quality Control Plan
QC	Quality Control
RAOs	Removal Action Objectives
RCRA	Resource Conservation and Recovery Act
RPM	Remedial Project Manager
Shaw	Shaw Environmental & Infrastructure, Inc.

***LIST OF ACRONYMS AND ABBREVIATIONS CONTINUED***

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SSHO	Site Safety and Health Officer
SOPs	Sampling Operating Procedures
TCLP	Toxicity Characteristic Leaching Procedure
TPH	Total Petroleum Hydrocarbons
WMA	Water Management Administration

## 1.0 INTRODUCTION

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### 1.1 PURPOSE

Shaw Environmental & Infrastructure, Inc. (Shaw) has been retained to remove and dispose of surface and subsurface contaminated soil at Site 19 and Site 27 (**Figure 1**), at the Naval Support Facility Indian Head (NSF-IH) in Charles County, Maryland, under Task Order (TO) JU46. This Work Plan has been prepared under the Department of the Navy, Naval Facilities Engineering Command (NAVFAC) Washington Contract Number N62470-08-D-1007. This removal action is part of the Installation Restoration (IR) program at NSF-IH. The Removal Action Objectives (RAOs) for Site 19 and Site 27 are to remove and dispose of contaminated soil, ensure that the soil left in place does not represent an unacceptable risk to human health and the ecological environment, and ensure that it does not provide a continuing source of contamination to soil beyond Silo Road (at Site 19) and around the concrete pad (at Site 27).

This Work Plan provides a detailed description of the removal activities to be performed at Site 19 and Site 27, and the activities are summarized as follows:

- Work plans and pre-construction submittals;
- Mobilization of personnel and equipment;
- Clearing and grubbing;
- Waste Characterization;
- Site setup;
- Excavation of soil and stockpiling of soil;
- Material load out/transportation and disposal;
- Site restoration;
- Site survey;
- Demobilization of personnel and equipment; and
- Closeout report preparation and review.

Additionally, several documents and plans have been prepared in support of the Work Plan and are presented in the following Appendices:

- Appendix A     Program Quality Control Plan (PQCP) Addendum
- Appendix B     Accident Prevention Plan (APP)
- Appendix C     Erosion and Sediment (E&S) Control Plan
- Appendix D     Laboratory Accreditation Letter
- Appendix E     Project Schedule

## 1.2 SITE DESCRIPTIONS

### 1.2.1 Site 19

Site 19 (**Figure 2**) is located to the west of Silo Road and consists of drainage areas leading from the two chip collection houses, Buildings 785 and 1051. The northern drainage area, leading from Building 785, covers approximately 0.25 acre. The southern drainage area, leading from Building 1051, covers approximately 0.18 acre. Building 1051 is no longer used as a chip collection house and no longer produces a wastewater stream.

Wastewater from Building 785 was historically drained through an 8-inch cast iron pipe into an approximately 2-foot-by-2-foot wooden catch basin. Discharge from Building 785 occurred from 1956, when the building was constructed, until 1999, when the waste stream was diverted to the wastewater treatment building. The wooden structure has been removed; however, the concrete base that supported the wooden catch basin remains in place. The former catch basin (suspected release area) associated with Building 785 lies naturally vegetated areas and is immediately upstream of a swale. Discharge was headed into this downgradient swale from the catch basin before it was diverted to the wastewater treatment building. Building 785 is still in operation as a chip house, but wastewater is now recycled rather than discharged to the swale.

### 1.2.2 Site 27

Site 27 (**Figure 3**) consists of a concrete pad (historically named Building 1584), where the former Thermal Destructor 1 was located, and the immediate surrounding area. The site covers approximately 0.27 acres. The thermal destructor was a propane-fired incinerator that burned wastewater between 1976 and 1979. During operation of the incinerator, the area, with the exception of the actual incinerator, was diked. Potentially, small spills may have occurred in the area of the incinerator when the pump transferring wastewater did not switch off in time. The thermal destructor has been dismantled, and only the concrete pad currently remains at the site.

The footprint of the concrete pad encompasses approximately 225 square feet and is surrounded by a grass-covered area. Building 406 is adjacent to the concrete pad (formerly Building 1584). Building 406, constructed in 1923, was used as a nitre cake (Sodium bisulfate) shed until 1947, when it became a storehouse for acid plant filter materials. From 1957, the building was used as a chemical storehouse until 1976, when it was used for tool and equipment storage. Since 1999, Building 406 has been used as a heating, ventilating, and air-conditioning storage building.

Possible spills of contaminated wastewater may have occurred in the immediate vicinity of the incinerator. Although no pipe ruptures or leaks were noted in available site records, small

releases of contaminated wastewater may have occurred at the location where the inflow piping entered the incinerator.

## **2.0 RESOURCES AND PROJECT ORGANIZATION**

This section details the equipment and materials Shaw anticipates using during work at Sites 19 and 27.

### **2.1 MANPOWER REQUIREMENTS**

Shaw will mobilize operational personnel to perform on-site activities based upon nearest available resources. Field administrative support for TO JU46 will be performed from Shaw's construction trailer. Project management, scheduling, and technical support will be performed at various Shaw offices. A project organization chart in the PQCP Addendum (**Appendix A**) presents the key Shaw personnel to be involved in the successful completion of this project.

### **2.2 PROJECT MANAGEMENT AND FIELD SUPERVISION**

The Shaw project management approach is to work closely with the client to accomplish all project objectives and ensure continuous client satisfaction with the project. Therefore, the Project Manager will have overall responsibility for project schedule, costs, and resources. A Site Superintendent will be assigned to the project with responsibility for accomplishing all fieldwork. The Site Superintendent will report directly to the Project Manager and supervise all day-to-day activities in the field.

The Project Manager and Site Superintendent will jointly develop project schedules and budgets throughout the project. Resource requirements will be addressed with the full support of the Shaw resource manager prior to mobilization and on a regular basis during the course of work.

A Project Business Administrator (PBA) will be assigned to the project to assist with daily cost tracking and equipment/materials procurement. The PBA will work closely with the Project Manager and Site Superintendent with regard to project costs and planning.

### **2.3 PERSONNEL – DUTIES AND RESPONSIBILITIES**

#### **2.3.1 *Shaw Responsibilities***

Shaw will accomplish the following:

- Perform the scope of work described in the Work Plan as required by CTO JU46.
- Attend a preconstruction meeting with the NAVFAC Washington Remedial Project Manager (RPM) and Facilities Engineering and Acquisition Division (FEAD)



representative, as well as the Water Management Administration (WMA), security, Fire Department, and environmental representatives.

- Prepare monthly performance reports.
- Prepare and submit a monthly progress report to the Navy documenting percent completion, unresolved delays (encountered or anticipated) that may affect scheduling and a description of efforts made to mitigate those delays, revisions to the construction schedule, listing of activities scheduled for the next month; and other information relating to progress of construction.
- Initiate and maintain a thorough and proactive safety program during the entire project.
- If a conflict, error, or discrepancy is found in contract documents, obtain a written interpretation or clarification from the FEAD before proceeding with the task(s) in question.
- Notify the RPM in writing of any change to site conditions.
- Implement the PQCP Addendum and establish a chain-of-command.
- Maintain at the site two record copies of all as-built drawings; and one copy of specifications, addenda, written amendments, change orders, work directive changes, field test records, field orders, and written interpretations and clarifications.
- Manage all resources to meet the project schedule in a cost-effective manner.
- Effectively communicate project-related information with the FEAD and RPM.

### ***2.3.2 Responsibilities of Shaw's Project Management Team***

The Project Manager will have day-to-day responsibility for all technical, schedule, and budget issues. The Site Superintendent, site safety and health officer (SSHO), PBA, and other support personnel will support the Project Manager in the field (as needed). Responsibilities and authority of the Project Manager and supporting field personnel are discussed in the following sections.

### ***2.3.3 Project Manager – Steve Carriere***

The Project Manager is the person in charge of the overall project and has full authority for project coordination and direction. The Project Manager will communicate directly with the RPM. Specific responsibilities assigned to the Project Manager will include:

- Interpret and plan overall work effort.
- Review and approve all submittals.

- Define resource needs and secure staff and equipment commitments.
- Monitor subcontractor performance, schedules, budgets, and invoices.
- Develop, review, and meet work schedule and budget objectives.
- Ensure technical adequacy of field, laboratory, data management, and construction activities.
- Attend meetings with the Navy, as required.
- Document the need for required contract modifications.

To carry out these functions, the Project Manager will have the authority to:

- Determine staff and subcontractor priorities.
- Allocate additional personnel as needed.
- Establish work budgets and schedules with milestones.
- Approve subcontractor work and invoices.
- Communicate with the Site Superintendent regarding site activities and identify potential concerns.
- Review and approve invoices.

#### **2.3.4 Site Superintendent – Brian Harris**

The Site Superintendent is the Shaw site contact and is responsible for the performance of all remediation activities in accordance with the Work Plan and other project plans and specifications. The Site Superintendent's responsibilities include:

- Implement day-to-day aspects of the APP and Work Plan.
- Coordinate engineering activities at the site, as directed by the Project Manager.
- Manage day-to-day administrative and procurement activities at the site.
- Monitor work progress and schedule, and advise Project Manager of variances.
- Comply with governing state and federal regulations pertinent to the work.
- Assist in preparation of work progress schedules, project reports, and as-built drawings.
- Submit the contractor production reports to the FEAD representative and Project Manager on a daily basis.

- Attend work progress meetings.
- Timely report any proposed significant project changes to the Project Manager to allow review and approval prior to incorporating the changed condition.

### **2.3.5 Site Quality Control Manager – Michael Hart**

The site quality control (QC) manager will be responsible for performing inspection activities as per the PQCP Addendum (**Appendix A**). The site QC manager will be supported in the field by a sample technician and geotechnician, if needed. The site QC Manager and technicians will monitor site activities on a periodic basis. Results of the inspections and testing will be documented in a report describing site operations performed each day. The site QC manager will also be responsible for:

- Manage the site specific QC requirements in accordance with the PQCP Addendum.
- Attend the coordination and mutual understanding meeting.
- Conduct QC Meetings.
- Perform the three phases of control.
- Perform submittal review.
- Perform submittal approval except for submittals designated for Contracting Officer or designated representative approval.
- Ensure testing is performed as required.
- Prepare QC certifications and documentation required.
- Verify that objective evidence has been provided to document satisfactory performance of the work (i.e. daily reporting and photo documentation).
- Exercise authority to stop work or direct removal and replacement of non-conforming work.
- Review results of on-site verification testing and inspection reports.
- Maintain the latest drawings and specifications with amendments and/or approved modifications at the site and ensure they are used for shop drawings, fabrication, construction, inspections, and testing.
- Maintain as-built drawings at the site, available for review by the Navy at all times.
- Establish and maintain a Rework Item List of work that does not conform to specifications. Track and monitor these items to assure that the rework inspection and testing activities and frequencies are in accordance with contract requirements.

- Attend and assist the government at the pre-final inspection and the final acceptance inspection.
- Confirm the quality and quantity of materials delivered to the site as referenced by project specifications and/or design drawings.
- Submit the QC reports to the FEAD representative and Project Manager on a daily basis.

### ***2.3.6 Site Safety and Health Officer – Michael Hart***

The SSHO is responsible for implementing the APP to satisfy federal, state, and local regulations and is consistent with site conditions. The SSHO may take actions independent of the project group to stop the project, if required, to address safety concerns. The Site Superintendent is responsible for conformance of all site work with requirements and procedures identified in the APP. The SHSS will oversee the day-to-day implementation of the APP as follows:

- Direct entrance and exit medical physical requirements, as required.
- Approve of personal protective equipment and safety procedures specified in the APP.
- Oversee the maintenance and use of field monitoring equipment.
- Designate appropriate personnel protection levels, including upgrades.
- Provide guidance to the project staff to maintain compliance of all site work with federal and state regulations.
- Conduct daily safety “tailgate” briefings.

### ***2.3.7 Project Business Associate – Joey Guzzardo***

The responsibilities of the PBA will be:

- Accrue daily costs into the accounting system VISION/Insite.
- Assist the Project Manager with preparation of schedules, budgets, and invoices.
- Use VISION to track costs and budget variances.
- Provide weekly progress reports on budget and schedule status to the Project Manager.
- Prepare daily report deliverables.
- Audit weekly postings of charges to work budgets.
- Assist Site Superintendent with procurement activities.

- Finalize costs for invoices to the government.
- Perform site administrative duties.

### ***2.3.8 Equipment Operators and Field Technicians***

The responsibilities of the equipment operators and field technicians will be:

- Perform all sampling activities in accordance with Navy and Shaw procedures.
- Conduct and record the results of all QC inspections and testing.
- Operate construction equipment.
- Remediate the site in accordance with Site Superintendent's directives.

## **3.0 REMEDIATION ACTIVITIES**

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This section discusses the major field activities associated with the removal action activities at Sites 19 and 27. The activities below are discussed in sequential order, however field conditions, weather or client direction may alter the sequencing of activities.

### **3.1 PRE-MOBILIZATION ACTIVITIES**

Shaw has prepared the following documents for review and approval by the Navy:

- Work Plan;
- PQCP Addendum (**Appendix A**);
- APP (**Appendix B**); and
- E&S Control Plan (**Appendix C**).

#### **3.1.1 Utility Search**

Shaw will contract a private utility locator to perform a utility mark-out at each site prior to beginning removal activities. The findings of the utility mark-out will be submitted to the FEAD office by the Shaw QC manager. A field inspection to verify the locations of the utilities, if present, will be conducted prior to removal activities. Any underground utilities that are impacted by the removal will be protected.

#### **3.1.2 Pre-Construction Meeting**

Prior to mobilization, Shaw will coordinate the scheduling of a pre-construction meeting with the FEAD, RPM, WMA, as well as the Base safety and Fire Departments. Shaw will use the meeting to present in detail the steps of construction activities. Lines of communication between Shaw, FEAD, RPM, and WMA personnel will be confirmed during the meeting.

#### **3.1.3 Pre-Construction Survey**

Prior to performing the removal actions at Sites 19 and 27, pre-excavation surveys will be performed to document initial site conditions. The surveys will be referenced to existing benchmarks to provide accurate “as built” drawings for post-construction reporting. Additionally, the pre-construction surveys will provide existing elevation and layout for the proposed excavation areas.

### 3.2 MOBILIZATION AND SITE PREPARATION

Shaw will schedule a mobilization date upon receiving Work Plan approval, issuance of a completed CWAP/Base Safety Permit, and notice to proceed from the FEAD. Removal activities will begin at Site 19 in early March of 2011. Shaw personnel, equipment, and materials will be allocated from other project sites. Rental equipment will be mobilized from local vendors based upon lowest qualified bidder. A project support area will be established at the Shaw's construction trailer. Shaw will re-mobilize to perform the removal activities at Site 27 after the bald eagle nesting season time-of-year restrictions have passed (after June 15, 2011).

### 3.3 INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES

E&S control measures (e.g. stabilized construction entrances, silt fence, earth dikes and temporary stone outlet structures) will be installed in accordance with the E&S Control Plan provided as **Appendix C**. E&S control measures will be inspected and maintained to ensure that they are functioning as designed. Inspection and maintenance procedures are provided on **Drawing ES-01 of Appendix C**.

### 3.4 VEGETATIVE CLEARING

Vegetative clearing activities at Sites 19 and 27 will consist of minimal tree cutting (stumps will not be removed) and brush clearing necessary to access and remove the contaminated soil. Small hydraulic equipment will be used for the debris removal and will not require much clearing. The clearance of large trees within the limits of disturbance will be minimized. Prior to performing vegetative clearing Shaw will perform a site walk to identify large trees within the limits of disturbance that can be saved. These trees will be marked or protected accordingly to prevent their removal. Prior to removing any large trees, Shaw will request authorization from the Naval Support Facility Indian Head Natural Resources Program Manager. If authorization is received, large trees will be cut into manageable lengths. Shaw will transport all merchantable timber (8" diameter at breast height or greater), except sweetgum and pine, to the NSFIIH firewood lot. Branches, small trees and brush will be chipped and spread onsite and will not require offsite disposal.

### 3.5 INSTALLATION OF EXCAVATED MATERIAL STOCKPILE AREAS

Excavated soil at each site will be temporarily stockpiled in the excavated material stockpile areas that are depicted in the E&S Control Plan (**Appendix C**), loaded into haul trucks, and disposed of at a Navy approved offsite disposal facility. The stockpile for Site 19 will be located

just southeast of Building 785 next to the steam pipe line (**Drawing ES-04 of Appendix C**). The excavated material stockpile area will be constructed in accordance with the detail provided on the E&S Control Plan **Drawing ES-06 of Appendix C**. The stockpile area for Site 27 will be located within the excavation area (**Drawing ES-05 of Appendix C**). Silt fence will be installed around the stockpile area for containment purposes.

### 3.6 SURFACE AND SUBSURFACE REMOVAL ACTIONS

An Engineering Evaluation/Cost Analysis (EE/CA) was performed at Sites 19 and 27 by CH2MHILL. The RAOs for Site 19 and Site 27 are to remove and dispose of contaminated soil, ensure that the soil left in place does not represent an unacceptable risk to human health and the ecological environment, and ensure that it does not provide a continuing source of contamination to soil beyond Silo Road (at Site 19) and around the concrete pad (at Site 27). Soil at Site 19 is contaminated with nitroglycerine (NG) and lead; whereas soil at Site 27 is contaminated with arsenic and chromium. The Indian Head Installation Restoration Team reached a consensus on the lateral and vertical extents of excavation for the two sites, and determined that post-excavation confirmatory sampling will not be required for either site.

#### 3.6.1 Site 19

Site 19 was divided into three removal subareas (**Drawing ES-04 of Appendix C**), the upper-excavation area (0 to 0.5 feet below ground surface [bgs]), mid-excavation area (0 to 2 feet bgs), and lower-excavation area (0 to 4 feet bgs). At Site 19, surface and subsurface soil will be removed along the drainage swale from Building 785 to Silo Road because of human health and ecological risks from NG and lead in the surface soil and human health risks from NG in the subsurface soil.

The total excavation area is approximately 4,810 square feet (0.11 acre), and approximately 260 cubic yards (390 tons) will be excavated. Excavation activities will begin at the upper-excavation area and work southward toward the lower-excavation area. The soil will be excavated using an excavator and transported northward toward the steam pipe lines via skid steer loader. An additional excavator will be located at the steam lines to load the excavated soil over the steam lines into a dump truck. The dump truck will transport the excavated soil to the temporary excavated material stockpile area in preparation for disposal. The contaminated soil will be disposed of at a Navy approved offsite disposal facility as soon as possible or within 90 days. Excavated soil placed in the temporary excavated material stockpile area will be covered in inclement weather, end of the working day, or when not in use.



### 3.6.2 Site 27

At Site 27, surface soil will be removed in the area around the concrete pad (Building 1584) because of human health and ecological risks from arsenic and chromium in the soil. The excavation area at Site 27 is approximately 14,695 square feet (0.34 acre). The removal area will be excavated to a depth of approximately 0.5 feet bgs, generating approximately 242 cubic yards (363 tons) of contaminated soil for disposal.

Excavation will begin on the northern end of Site 27 and continue excavation toward the south. The excavated soil will be transported to the excavated material stockpile area, which is located within the excavation area on the west side (**Drawing ES-05 of Appendix C**). The contaminated soil will be disposed of at a Navy approved offsite disposal facility as soon as possible or within 90 days. Excavated soil placed in the temporary excavated material stockpile area will be covered in inclement weather, end of the working day, or when not in use.

### 3.7 WASTE DISPOSAL CHARACTERIZATION SAMPLING

Waste disposal characterization soil samples will be collected in-situ from the proposed excavation areas for both Site 19 and Site 27 and analyzed for full Toxicity Characteristic Leaching Procedure (TCLP) parameters (volatiles, semivolatiles, metals, herbicides, and pesticides), Polychlorinated Biphenyls (PCBs), Resource Conservation and Recovery Act (RCRA) characteristics to characterize the material for disposal. The analytical data will be compared to TCLP Maximum Contaminant Concentrations (40 Code of Federal Regulations [CFR] 261.6/96), PCB limits to determine if the concentrations exceed the regulatory requirements for land disposal. Additional discussion of waste disposal characterization disposal sampling is provided in **Section 4.0**.

### 3.8 TRANSPORTATION AND DISPOSAL

Excavated soil will be loaded into haul trucks and disposed of at a Navy approved offsite disposal facility. All waste is assumed to be non-hazardous. Copies of waste manifests will be maintained and will be included in the Construction Completion Report.

### 3.9 SITE RESTORATION

Restoration will consist of backfilling all disturbed areas to existing conditions and restoring vegetation in accordance with **Drawing ES-03 of the E&S Control Plan (Appendix C)**. Site 19 will be backfilled with common fill in 8 inch lifts and compacted using field equipment to achieve an acceptable degree of compaction. Site 19 will be backfilled with common fill to a

level 6 inches below the desired finish grade. A 6 inch layer of topsoil will be placed over the common fill to reach desired finish grade. Once the finish grade is reached, the ephemeral stream area will be stabilized with erosion control matting. No riprap is to be installed in the stream channel. Site 27 will be backfilled with a 6 inch layer of topsoil to reach desired finish grade. Fill material sources will require Navy approval prior to importing the material to the sites. After topsoil placement is completed at each site, stabilization practices, to include temporary and/or permanent seeding and mulching, will follow. Details on the stabilization methods to be used can be found in **Appendix C** on **Drawing ES-03**.

For fill material (material brought on site to restore site grading), one five-point composite soil sample will be collected from each type of fill material (i.e. common fill and topsoil) for each material source. With the exception of the volatile and Total Petroleum Hydrocarbons (TPH) Gasoline Range Organic (GRO) fractions which one grab sample will be collected from each type of material. Fill material samples will be analyzed for volatiles, semivolatiles, pesticides, PCBs, TAL metals, cyanide, TPH Diesel Range Organic (DRO) and GRO.

### 3.10 PROJECT SCHEDULE

The proposed project schedule is presented in **Appendix E**.

## 4.0 SAMPLING AND ANALYSIS SUMMARY

This section presents sample analytical methods, procedures for soil sample collection, and data analysis methods. The National Environmental Laboratory Accreditation Conference (NELAC) laboratory certification and Navy validation letter for the laboratory to be used by Shaw can be found in **Appendix D**.

### 4.1 WASTE DISPOSAL CHARACTERIZATION SAMPLE ANALYSES

Two (2) in-situ waste disposal characterization soil sample will be collected, one (1) from Site 19 and one (1) from Site 27 to characterize the soil for disposal. The purpose of the five point composite is to characterize the soil to be excavated by collecting a sample that would represent the average concentration of the soil to be disposed. The individual aliquots will be collected, transferred to a stainless steel bowl, and composited per the Shaw Sampling Operating Procedures (SOPs). Waste disposal characterization samples will be collected as follows:

- Collect one five point composite sample of material from each area.

Equal sample volume from each of the grab samples will be used to form the composite sample. Each grab sample will be staked and it will be noted in the sample logbook which grabs were used to form the composite sample. The purpose of the five point composite is to characterize the soil to be excavated by collecting a sample that would represent the average concentration of the soil to be disposed. The individual aliquots will be collected, transferred to a stainless steel bowl, and composited per the Shaw SOP.

Waste disposal characterization samples will be analyzed for full TCLP parameters (volatiles, semivolatiles, metals, herbicides, and pesticides), PCBs, RCRA characteristics to characterize the material for disposal. The analytical data will be compared to TCLP Maximum Contaminant Concentrations (40 CFR 261 6/96), PCB limits to determine if the concentrations exceed the regulatory requirements for land disposal.

If the TCLP concentrations exceed the TCLP Maximum Contaminant Concentrations and or 50 milligrams per kilograms (mg/kg) of total PCBs then the soil is classified as a hazardous material and it must be transported to a permitted hazardous waste facility. Should this occur, the Navy will be notified of the change in conditions. Additional subdividing of the area and sample analysis for the constituent that exceeded the TCLP Maximum Contaminant Concentrations may be required.

If the TCLP concentrations do not exceed TCLP maximum contaminant concentrations and are equal to or less than 50 mg/kg of Total PCBs then the material is not hazardous and can be excavated and transported to an approved permitted non-hazardous disposal facility.

Additional analytical data may be required by the permit of the disposal facility. These protocols will be based upon the facility for which the material will be disposed of. At all times the disposal analysis will be within the limits of the permitted facility.

## **4.2 CLEAN FILL MATERIALS**

All material to be brought to the site and used as clean fill will be analyzed prior to placement of the material. One five point composite soil sample will be collected from each type of fill material (i.e. common fill and topsoil) for each material source. With the exception of the volatile and TPH GRO fractions which one grab sample will be collected from each type of material. Fill material samples will be analyzed for volatiles, semivolatiles, pesticides, PCBs, TAL metals, cyanide, TPH DRO and GRO. All results of these samples shall be evaluated by the Navy and approved by the Navy RPM prior to placement.

## **4.3 SAMPLE CUSTODY AND DOCUMENTATION**

As part of appropriate documentation, all sample bottles will be adequately labeled. The label will present sample identification and collection information. It will be pre-printed from the sample tracking system or completed with indelible ink. At a minimum, all sample labels will include the following sample information:

- Field sample location and unique sample identifier;
- Project name and number;
- Analysis requested for each bottle;
- Method of preservation for each bottle;
- Date and time of collection; and
- Initials of sample technician.

A sample numbering system will be utilized in the field to uniquely identify each sample collected at Site 19 and Site 27. The sample number will be traceable to the site, location, and depth (where applicable). The sample identification and description will be recorded by the site superintendent or representative in the sample collection logs. The samples collected on-site will

be provided with a unique sample designation. The number will serve to identify the site, location, and specific sample identification number. The sample designation will be as follows:

***IDHEAD- XXX – SITE– DD – NNN***

Where:

IDHEAD = Indian Head

XXX = Delivery Order for the project

SITE = Site 19 or 27

NNN = Sequential number starting at 001

DD = Matrix identifier and/or QC identifier

e.g. CS = Disposal Characterization Soil

BF = Backfill Material

TS = Topsoil Material

Sand = Sand Material

TB = Trip Blank

**4.4 SAMPLE COLLECTION PROCEDURES**

All soil samples will be visually classified and documented in a sample collection log book.

**Table 4.4-1** below summarizes the samples to be collected for clean fill materials and the waste disposal characterization soil samples.

**TABLE 4.4-  
Clean Fill Materials and Waste Characterization Soil Sampling**

Matrix	Analytical Group	Analytical and Preparation Method	Sample Size	Containers (number, size, and type) <sup>1</sup>	Preservation Requirements	Maximum Holding Time (preparation / analysis)
<b>Fill Materials</b>						
Fill Material	TCL VOC	SW-846 5035A /8260B	15 grams	(3) 5g EnCore Samplers <sup>2</sup>	Cool 4°C ± 2°C	48 hours to preservation/14 Days
Fill Material	TCL SVOC	SW-846 3550B/8270D	30 grams	(2)-8 oz jar	Cool 4°C ± 2°C	14 days / 40 days
Fill Material	TCL Pesticides	SW-846 3550B/8081B	30 grams		Cool 4°C ± 2°C	14 days / 40 days
Fill Material	Total PCB's	SW-846 3550B/8082A	30 grams		Cool 4°C ± 2°C	14 days / 40 days
Fill Material	TAL Metals – ICP	SW-846 3050B & 6010C/ 7471B	2 grams		Cool 4°C ± 2°C	6 months
Fill Material	Metals – Mercury	SW-846 7471B	2 grams		Cool 4°C ± 2°C	28 days
Fill Material	Cyanide, Total	SW-846 9010C/9014	15 grams		Cool 4°C ± 2°C	14 Days
Fill Material	TPH DRO	SW-846 3550B/8015M	30 grams		Cool 4°C ± 2°C	14 days / 40 days
Fill Material	TPH GRO	SW-846 5035A/ 8015M6	10 grams	(2) 5g EnCore Samplers <sup>2</sup>	Cool 4°C ± 2°C	48 hours to preservation/14 Days
Trip Blanks / Aqueous	TCL Volatiles	SW-846 5035A /8260B	120 mls	(3) 40 ml VOC vials	Cool 4°C ± 2°C, pH <2	14 Days
<b>Waste Characterization Samples – Soil</b>						
Disposal Soil	TCLP Volatiles	SW-846 1311/ 5030B/ 8260B	30 grams	(1)-4 oz glass jar	Cool 4°C ± 2°C	14 days to leaching/14 Days
Disposal Soil	TCLP Semivolatiles	SW-846 1311/ 3510C/ 8270D	30 grams	(3)-8oz jar	Cool 4°C ± 2°C	14 days to leaching 7 days / 40 days
Disposal Soil	TCLP Pesticide	SW-846 1311/ 3510C/ 8081B	30 grams		Cool 4°C ± 2°C	14 days to leaching 7 days / 40 days
Disposal Soil	TCLP Herbicides	SW-846 1311 3510C/ 8151A	30 grams		Cool 4°C ± 2°C	14 days to leaching 7 days / 40 days
Disposal Soil	TCLP Metals ICP (As, Ba, Cd, Cr, Pb, Se, Ag)	SW-846 1311 3010A / 6010C	30 grams		Cool 4°C ± 2°C	180 Days
Disposal Soil	TCLP Metals Hg	SW-846 1311 7470A			Cool 4°C ± 2°C	28 days
Disposal Soil	Cyanide, Total	SW-846 9010C/9014	15 grams		Cool 4°C ± 2°C	14 Days
Disposal Soil	Sulfide, Total	SM21 4500S=F mod	15 grams		Cool 4°C ± 2°C	14 Days
Disposal Soil	Ignitability (Flashpoint)	SW-846 1010A	5 grams		Cool 4°C ± 2°C	14 Days
Disposal Soil	Corrosivity as pH	SW-846 CHAP7/9045D	5 grams		Cool 4°C ± 2°C	Immediate
Disposal Soil	Total PCB's	SW-846 3550B 8082	30 grams		Cool 4°C ± 2°C	14 days / 40 days
Disposal Soil	TPH DRO	SW-846 3550B 8015M	30 grams		Cool 4°C ± 2°C	14 days / 40 days
Disposal Soil	TPH GRO	SW-846 5035A 8015M	10 grams	(2) 5g EnCore Samplers <sup>2</sup>	Cool 4°C ± 2°C	48 hours to preservation/14 Days

<sup>1</sup>Sample size is a minimum; the containers listed will be filled to compensate for any required re-analysis or re-extractions. For samples requiring Matrix Spike(MS)/Matrix Spike Duplicate(MSD) containers listed should be tripled.

<sup>2</sup>Or laboratory equivalent pre-preserved and pre-weighed 40 milliliter (ml) vials and soil syringes to transfer sample to vials. For volatiles samples collect two 40 ml vials with laboratory grade reagent water, and one 40 ml vial with pesticide grade methanol. For GRO samples collect two 40 ml vials with pesticide grade methanol. Add ~5 grams of soil to each of the individual vials.

## **5.0 REPORTING**

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### **5.1 DATA MANAGEMENT REPORTING**

To ensure the integrity of sample analytical data from the time of collection in the field to the tabulation of results, data documentation protocols will be implemented. This will include providing sample labels, chain of custody (COC) records, field information forms, and data collection records to document field information; and comparing laboratory analysis reports with tabular displays and graphic displays to evaluate the accuracy of data transfer. A report will be prepared summarizing the data collection and the analytical results for each sampling event.

### **5.2 CLOSURE REPORT PREPARATION AND REVIEW**

Upon completion of all field activities, Shaw will prepare a Construction Completion Report documenting site activities and reporting all data. This report will include all daily notes from field activities, a description of each project task, any problems encountered along with corrective measures, project photographic documentation, as-built drawings, disposal documentation, and all pertinent analytical data/reports. Shaw will submit a draft report to NAVFAC Washington, Naval District Washington – Indian Head, Maryland Department of the Environment (MDE), and the Environmental Protection Agency (EPA) for review and comment. Upon receiving review comments, Shaw will incorporate all comments and will submit the report as the final version. Upon publication of the final version, a hard copy and electronic copy will additionally be distributed to Tetra Tech for inclusion into Naval Installation Restoration Information Solution (NIRIS).

## 6.0 ENVIRONMENTAL PROTECTION PLAN

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### 6.1 PURPOSE

This plan presents environmental protection measures to be employed during site activities. Shaw will implement procedures and supply materials necessary for environmental protection for activities associated with removal actions at Sites 19 and 27. Principle concerns include small spills and E&S control. Additional information may be found in the APP (**Appendix B**) and the E&S Control Plan (**Appendix C**).

### 6.2 EMERGENCY AND DECONTAMINATION EQUIPMENT

#### 6.2.1 *Small-Scale Emergency Equipment*

Small scale emergency equipment will include dry chemical, ABC-rated fire extinguishers; spill control equipment; absorbent materials; decontamination equipment; air purifying respirators; radio and telephone equipment; and various hand tools. This equipment will be accessible to all on-site workers.

#### 6.2.2 *Large-Scale Emergency Equipment*

Large-scale emergency equipment will be utilized if equipment of such size and power is necessary. Other emergency support equipment may be supplied by the NSF-IH Fire Department depending upon the type of emergency and equipment needs.

#### 6.2.3 *Decontamination of Equipment*

Equipment necessary for decontamination activities will be provided, installed, and verified in working order prior to any site operations. Equipment for the decontamination area includes but is not limited to the following items:

- Clean water supply,
- Detergent solution,
- Brushes,
- Waste containers, and
- Pressure washer.



## **7.0 PREVENTATIVE ACTIONS**

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### **7.1 EQUIPMENT MAINTENANCE**

Construction equipment will be properly maintained to ensure safe operation. All equipment will be regularly inspected and maintained (and documented in the inspection/maintenance log) in such manner as to minimize spillage or leakage which may occur during on-site transportation operations.

### **7.2 HOUSEKEEPING PROGRAM**

Shaw's housekeeping program includes many items such as neat and orderly storage of materials, proper truck and tank placards, prompt removal of spillage, refuse pickup and disposal, maintenance of roads and surfaces, and provisions for the storage of material. A daily departure inspection will be performed by the Site Superintendent.

Small spills may include solid or liquid materials being mishandled, dumped, leaked, knocked over, etc. Any material spillage will be immediately contained and collected for subsequent disposal. Excavation will be performed such that exposed source materials remain within the limits of excavation. Any spilled liquids will be contained and collected by absorbent materials. Spilled fuel and impacted soil will be collected and staged for later disposal.

### **7.3 PROTECTION OF NATURAL RESOURCES**

Shaw will preserve the natural resources within the project boundaries and outside the limits of disturbance, except as is necessary to implement required work. The work site will be restored to satisfactory or improved condition upon project completion. Shaw will document existing environmental conditions in and adjacent to the site. Shaw will also conform to NSF-IH requirements with respect to the protection of natural resources. At the completion of site activities, Shaw will remove obvious traces of construction such as stockpiles, barricades, silt fencing, dikes, etc.

### **7.4 PETROLEUM WASTES**

Shaw will implement all reasonable precautions to prevent oily or other hazardous substances from entering the ground, drainage areas, or local bodies of water. Equipment and storage vessels containing oils and fuels will be visually inspected prior to site entry and daily thereafter for leakage, drips, or other preventable releases. Any equipment or vessel damage will be immediately repaired or removed from the site. Petroleum releases will be acted-on upon

observation and impacted materials disposed of appropriately. Shaw will immediately notify NAVFAC and NSF-IH of any oil spills.

The site will be equipped with a spill kit, sufficient to contain and clean up on-site quantities of petroleum products. In the event of a spill, Shaw will notify the NSF-IH Environmental Manager who will relay the information on to the appropriate responders depending on the specific spill situation.

## **7.5 WASTE HANDLING**

Contaminated soil will be temporarily stockpiled in staging areas at Sites 19 and 27. Once the soil material is appropriately characterized for disposal it will be loaded into dump trucks for transportation and disposal. The transportation and disposal activities will be performed in accordance with local, state, and federal regulations as well as NAVFAC and NSF-IH contract requirements.

## APPENDIX A

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### *PROGRAM QUALITY CONTROL PLAN ADDENDUM*



*FINAL*  
PROGRAM QUALITY CONTROL PLAN ADDENDUM

REMOVAL ACTIONS AT SITES 19 AND 27  
NAVAL SUPPORT FACILITY, INDIAN HEAD  
INDIAN HEAD, MARYLAND

**CONTRACT NO. N62470-08-D-1007**

Prepared for:

**Naval Facilities Engineering Command Washington**

1314 Harwood Street, S.E.

Washington Navy Yard, DC 20374-5018

Prepared by:

**Shaw Environmental and Infrastructure, Inc.**

500 East Main Street, Suite 1630

Norfolk, Virginia 23510

TASK ORDER JU46  
SHAW PROJECT NO. 140662


**FEBRUARY 2011**

## PROGRAM QUALITY CONTROL PLAN ADDENDUM


### Removal Actions at Sites 19 and 27 Naval Support Facility, Indian Head Indian Head, Maryland

#### SIGNATURE PAGE

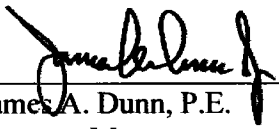
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Steve Carriere, PMP  
Project Manager

February 17, 2011  
Date

  
Ernie Duke  
Program QC Manager

February 17, 2011  
Date

  
James A. Dunn, P.E.  
Program Manager

February 17, 2011  
Date

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- IX-2 Contractor Quality Control Report
- X-1 Quality Control Inspection Plan
- XI-1 Personnel Matrix

## ***STATEMENT OF QC PROGRAM***

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This Site Specific Addendum to the Program Quality Control Plan is prepared and submitted for Task Order JU46, Removal Actions at Site 19 and 27, Naval Support Facility Indian Head, Indian Head, Maryland. This plan incorporates methods and procedures from the Program Quality Control Plan approved by the Atlantic Division, Naval Facilities Engineering Command (NAVFAC). The Program Quality Control Plan was developed specifically to be responsive to the Contract Specification, Contract No. N62470-08-D-1007. Shaw Environmental, Inc. (Shaw) will perform the inspections and tests required to ensure that materials, workmanship, and construction conform to drawings, specifications, and contract requirements.

### **Note to Employees – Concept of Quality Control**

Quality control should not be considered a person or an organization of personnel, but a concept to perform in such a manner that the end product of our efforts provides a quality product and customer satisfaction. The quality control individual or group cannot inspect quality into the final product, but only inspect and document the results of our efforts. The only people that can build quality into the product are the individuals performing the task of producing the end product.

It should be noted by all employees that the documentation requirements of Shaw procedures, plans, and the Task Order Specifications are considered equally as important as the end product itself. When it is stated that the documentation will be approved prior to the start of work, this is exactly what is intended. To eliminate problems in this area requires careful planning and execution by everyone.

We would do well to remember that our livelihood depends on how well we satisfy our customer. To accomplish this requires teamwork and attention to detail by all employees and contractors.

## **I. QUALITY CONTROL ORGANIZATION**

The Site Quality Control (QC) Manager will have the authority to implement and manage the QC Plan, the three phases of QC and the authority to stop work, which is not in compliance with the contract.

The Site QC Manager for this task order will be Michael Hart. Mr. Hart will function as the Site QC Manager for this task order under the direction and oversight of Mr. Duke, Shaw Program QC Manager. Mr. Hart maintains current US Army Corps of Engineers (USACE) Construction Quality Management for Contractors, QC certification.

Mr. Hart will work closely with the Project Manager and Site Superintendent, but will report directly to Mr. Ernie Duke, the Program QC Manager regarding QC related issues on the site. Mr. Ernie Duke, Shaw Program QC Manager will serve to resolve any QC related issues, which need his involvement. The Site QC Manager will have a direct line of communication to Mr. Duke on QC issues.

The relationship between the QC organization, and production personnel of the task order, is provided in the Organizational Chart, Figure I-1.

## **II. IDENTIFICATION OF PERSONNEL ASSIGNED TO THE QC ORGANIZATION**

The resume of the Site QC Manager is provided as Figure II-1.

## **III. APPOINTMENT LETTER**

The appointment letter for the Site QC Manager is presented as Figure III-1.

## **IV. OUTSIDE ORGANIZATIONS**

A list of outside organizations such as subcontractors employed by Shaw for work under this task order is provided in Exhibit IV-1. This list provides each firm's name and address and a description of the services each firm will provide. This list will be maintained current and will be available for review.

## **V. INITIAL SUBMITTAL REGISTER & REVIEWER**

### **V.1 Submittal Register**

The Initial Submittal Register is provided as Exhibit V-1. The status of each submittal will be recorded and maintained by the Site QC Manager. The Submittal Register will be submitted at the end of each month.

### **V.2 Personnel Authorized to Review and Certify Submittals**



Personnel authorized to review and certify submittals other than the Site QC Manager are identified on Exhibit V-2. The Site QC Manager shall perform the final review and approval/certification for all submittals. Any additional personnel assigned to perform submittal review and certification must be approved by the Contracting Officer, prior to performance.

## **VI. TESTING LABORATORY ACCREDITATION**

Testing laboratory accreditation requirements are addressed in the Program QC Plan Section 1, part 4.7, Construction Testing.

## **VII. TESTING PLAN & LOG PREPARATION**

A Testing Plan and Log has been prepared for this task order and is provided as Exhibit VII-I.

## **VIII. REWORK ITEMS LIST**

Rework Items will be documented on the Daily QC Report and on the Rework Items List. This list will be used to report and track Rework Items. The Rework Items Log is provided as Exhibit VIII-1 and will be submitted at the end of each month.

## **IX. DOCUMENTATION PROCEDURES**

The Daily QC Report form and Daily Production Report form will be used to document daily activities at the site. Documentation will be completed as discussed in Section 1, Parts 4.5 and 4.9 of the Program QC Plan.

## **X. QUALITY CONTROL INSPECTION PLAN**

The Quality Control Inspection Plan, Exhibit X-1, lists each specification section and definable feature of work with provisions for recording the corresponding checklist/report for each phase of the three-phase control process. As each control phase is satisfactorily preformed, the Site QC Manager will record the corresponding checklist/report number and date.

Note: A definable feature of work is a task, which is separate and distinct from other tasks and requires separate control procedures.

This list has been prepared to correspond to the activities of the project schedule. It will be maintained as provided in Section 1, Part 4.4 of the Program QC Plan. The list will be agreed upon during the Coordination and Mutual Understanding Meeting. The list will be keyed to the construction schedule. Each preparatory, initial and follow-up phase checklist/report will reflect the construction activity number derived from the

construction schedule.

## **XI. PERSONNEL MATRIX**

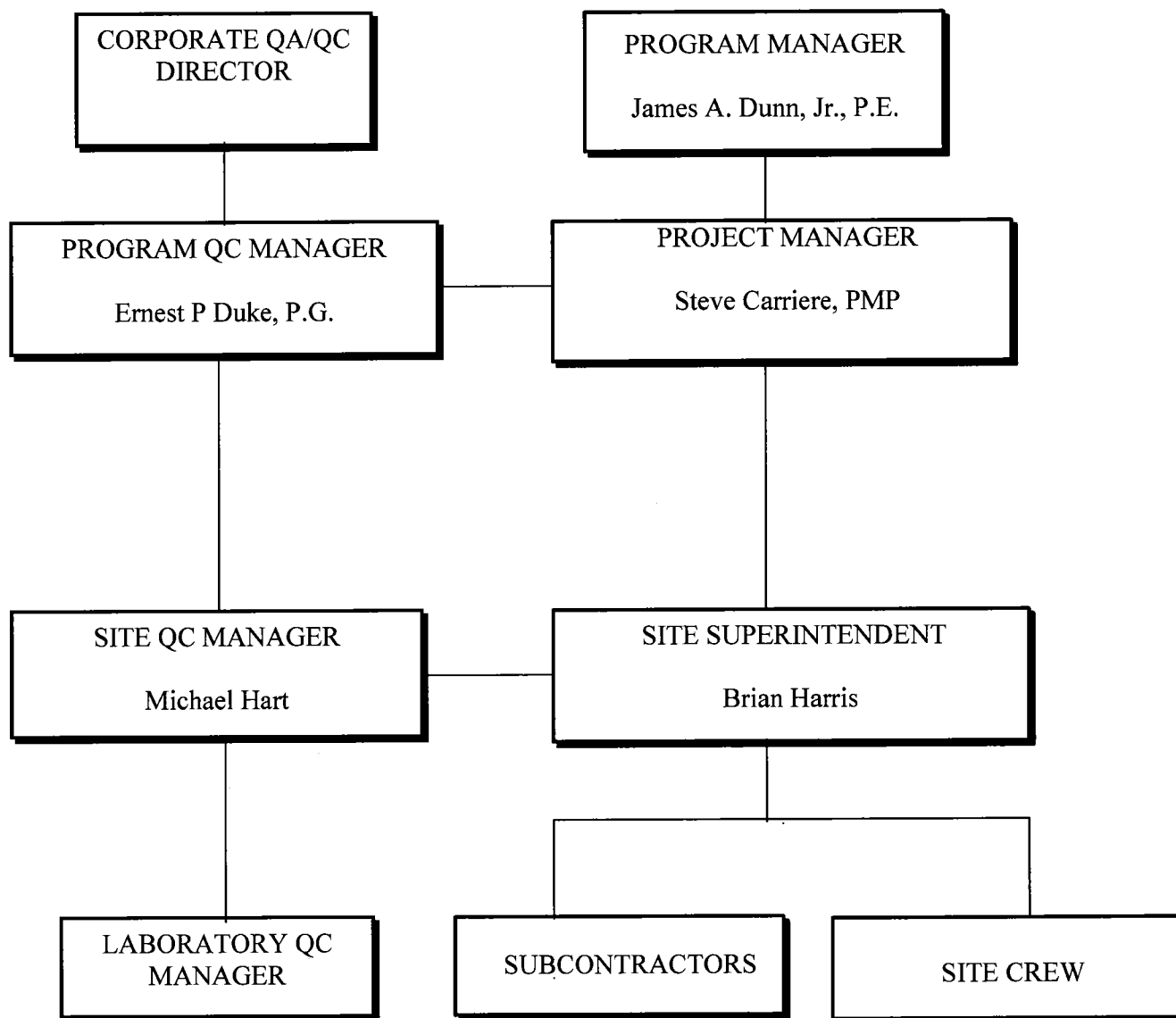
The Site QC Manager will prepare and maintain the personnel matrix, Exhibit XI-1, showing each section of the task order specification with identification of who will review and certify submittals, who will perform and document the three phases of control, and who will perform and document testing. This matrix should be completed as much as possible prior to and during site mobilization. The matrix will be maintained current by the Site QC Manager and will be available for review.

# FIGURES

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**FIGURE I-1**

**QC ORGANIZATIONAL RELATIONSHIP WITH  
PRODUCTION PERSONNEL  
SHAW ENVIRONMENTAL INC.,  
TASK ORDER NO. JU46**



**Figure II-1**  
**Site QC Manager / Representative - Resume**

**Michael J. Hart**

**Professional Qualifications**

Mr. Hart was brought on as a Scientist in the Norfolk, Virginia office in June 2006 to assist in all phases of various environmental construction/engineering projects. He has served as on-site technical support, has 4+ years of experience as a Quality Control (QC) representative, and has written and edited various technical reports and documents including project Work Plans, QC Plans, Storm Water Pollution Prevention Plans, Construction Completion Reports, Concurrence Letters, Explosives Safety Submissions, etc...

Mr. Hart has provided technical support for a number of field related tasks, a majority of which have been in support of U.S. Navy NAVFAC Atlantic Remedial Action Contract (RAC) projects. From 2007 to 2010 Mr. Hart also acted as the lead technician for project work being performed under a separate contract at Armed Forces Experimental Training Activity (AFETA) Camp Peary, located in Williamsburg, Virginia.

**Education**

Bachelor of Science, Major: Environmental Studies / Minor: Biology, The Richard Stockton College of New Jersey, Pomona, New Jersey, 2006

**Additional Training/Continuing Education**

Competent Person: Drilling Oversight, Shaw Environmental, Inc., 2010  
Confined Space - Entry Supervisor, Shaw Environmental, Inc., 2010  
8-Hour HAZWOPER Supervisor Training, Shaw Environmental, Inc., 2010  
Excavation Competent Person Training, Shaw Environmental, Inc., 2010  
OSHA 30 Hour Construction Safety , Shaw Environmental, Inc., 2010  
Munitions Site Response Management, Naval Civil Engineering Corps Officers School (CECOS), Norfolk, VA, 2010  
Vapor Intrusion Pathway: A Practical Guideline, Interstate Technology and Regulatory Council (ITRC), Norfolk, VA, 2010  
Ground Shipment of Hazardous Materials, Shaw Environmental, Inc., 2010  
Air Shipment of Dangerous Goods (IATA), Shaw Environmental, Inc., 2010  
Asbestos Awareness, Reactives Management Corporation, Chesapeake, VA, 2010  
8-Hour HAZWOPER Refresher, Shaw Environmental, Inc., 2010  
First Aid/CPR (Exp. 6/2011), Norfolk, VA, 2009  
U.S. Army Corps of Engineers Construction Quality Management for Contractors, ABC Inc., Norfolk, VA, 2007  
40-Hour HAZWOPER, Reactives Management Corporation, Chesapeake, VA, 2006  
24-Hour HAZWOPER Field Experience, Shaw Environmental, Inc., 2006

## Experience and Background

**06/2006 - Present**

**Scientist, Shaw Environmental & Infrastructure, Inc., Federal Services, Norfolk, Virginia**

Performed technical services for federal projects. Has obtained over four years of experience acting as a QC representative on various projects.

***The following is a summary of key projects:***

**Site QC Manager, Remedial/Removal Action for UXO 32 Scrap Yard, 119340, U.S. Navy, Indian Head, MD.**

**05/2010 - Present**

Project entailed the removal of approximately 1,350 cubic yards of soil contaminated with polychlorinated biphenyls (PCBs), and metals commingled with munitions and explosives of concern (MEC) and material potentially presenting an explosive hazard (MPPEH) from a concrete pad identified as the "Scrap Yard". Work was completed under a Naval Ordnance Safety and Security Activity (NOSSA) & Department of Defense Explosives Safety Board (DDESB) approved explosives safety submission (ESS). In areas where the pad was found to be missing or extensively damaged an additional foot of material was removed. All of the soil from inside the Scrap Yard was screened down to 3/4 inches in size to separate cartridge actuated devices (CADs) and propellant actuated devices (PADs), and any additional MEC/MPPEH, mixed in with the soil. A T-10 contained detonation chamber (CDC) operated by CH2M Hill was used to safely and efficiently dispose of MEC that could not be certified/verified as 5X. Outside of the Scrap Yard an additional 880 cubic yards of metals contaminated soil was removed, along with approximately 3,000 linear feet of railroad track. The top six inches of soil from outside of the Scrap Yard was screened as a preventive measure in case MEC/MPPEH slipped through the fence surrounding the Scrap Yard. Mr. Hart acted as Site QC Manager (supported by UXO QC) for the duration of the project and also provided technical support on an as needed basis.

**QC Representative / Technical Support, Site 53/53A Housekeeping Activity, 135922, AFETA Camp Peary, Williamsburg, VA, 01/2008 - Present**

The housekeeping activity at Sites 53 and 53A consisted of the removal of surface debris and coal impacted soil. At completion, approximately 17,000 tons of soil impacted with coal, PCBs, and metals had been removed from the site.

Mr. Hart's role in the project included assisting with site QC, initial test trenching oversight, Work Plan preparation, sampling support, and Global Positioning System (GPS) support, and Construction Completion Report preparation.

**Technical Support, Site 25 Removal Action (ESS), 126647, U.S. Navy, Williamsburg, VA, 08/2008 - 04/2010**

Mr. Hart prepared the site ESS to obtain clearance from NOSSA and the DDESB to complete a site removal action and screen soil for disposal that possibly contained MEC or MPPEH. The project was shut down in mid-2008 pending successful completion of an ESS after a 60 mm mortar round containing energetic material was unexpectedly uncovered during the removal action. The Site 25 ESS received DDESB approval in April 2010.

**QC Representative / Sample Technician, Vint Hill Farms Station Ground Water Monitoring, 120924, Vint Hill Farms Station, Warrenton, VA, 02/2007 - 11/2009**

February 2007: Mr. Hart assisted with the sampling and shipment of groundwater samples to be analyzed for VOCs at Vint Hill Farms Station (VHFS) AREE-34. A low-flow sampling technique was used utilizing a Grundfos pump/control box setup with a YSI flow-through cell. Managed to work through below-freezing temperatures and aided in devising ways to prevent the sampling equipment from freezing while in the field.

November 2007: Mr. Hart served as lead sample technician for 2-day sample event performed at VHFS AREE-1. Utilized low-flow sampling technique to complete the sampling event of four landfill closure monitoring wells.

November 2008: Mr. Hart served as lead sample technician for 4-day sample event performed at VHFS AREE-1 and AREE-34. During this sampling event a special procedure was utilized to sample a well at AREE-34 that was installed in an area that was previously treated with vegetable oil. Initially, one complete volume of the well was bailed prior to placing a sealed 15-foot PVC conduit pipe inside the 2-inch well casing. The following day, after the well recharged, LDPE tubing was run down the PVC conduit and used to break the seal allowing for access to groundwater below the vegetable oil layer. A peristaltic pump was used to collect the groundwater samples.

February & May 2009: Mr. Hart served as a sample technician for 2-day low-flow sample event performed at VHFS AREE-34.

November 2009: Mr. Hart served as the lead sample technician for a 4-day low-flow sample event performed at VHFS AREE-34 and AREE-1. During this sampling event Mr. Hart was assisted by a new hire experiencing field work and low-flow sampling for the first time. The sampling event was successfully completed as scheduled.

Technical Support, Site UXO 32 - Scrap Yard (ESS), 119340, U.S. Navy, Indian Head, MD, 08/2008 - 05/2009  
Mr. Hart assisted in the preparation of the site ESS to obtain clearance from NOSSA and the DDESB to perform a removal action and screen soil for disposal that possibly contained MEC and/or MPPEH. This ESS received DDESB approval on May 14, 2009.

Technical Support, Vieques Removal Actions Solid Waste Management Unit (SWMU) 6, 7, Area of Concern (AOC) J & R, 116701, U.S. Navy, Vieques, PR, \$887,111.00, 03/2009 - 04/2009  
This project consisted of the excavation and disposal of approximately 11,500 tons of debris and contaminated soil at four sites (SWMU-6, SWMU-7, AOC-J and AOC-R) on the island of Vieques, Puerto Rico. Mr. Hart contributed to this project by providing soil sampling support and general on-site technical support. Technical support activities included using a Trimble GeoXH GPS receiver to map the sites and debris removal areas. GPS data collected was transferred to the software program Visual Sample Plan (VSP) which was used to create sampling maps which were submitted to the Navy and Regulators for review and approval.

QC Representative / Technical Support, Site 41D and Site 49F, 131506, Armed Forces Experimental Training Activity, Williamsburg, VA, \$613,954.00, 04/2008 - 02/2009  
Site 49F consisted of an abandoned swimming pool that was used for debris disposal. Sample analytical results showed that the soil and debris within the pool contained relatively high concentrations of PCBs. Shaw was responsible for mobilizing to the site to locate and remove the discharge line. The route of the discharge line was marked using a GPS. The drain from the pool was plugged. A clay cap was installed atop the pool to prevent further migration of contaminants outside of the pool. When the Navy CLEAN contractor was prepared to collect soil samples Shaw mobilized to the site, removed the clay and disposed of the contents of the pool and demolished the pool. Mr. Hart provided technical support for this project by providing construction oversight, GPS support, and Completion Report production.

Site 41D consisted of an abandoned wastewater treatment plant. Shaw was responsible for demolishing a chlorinator building and disposing of water and sediment in an adjacent concrete tank. An Imhoff tank and filter beds were also demolished. Mr. Hart provided technical support for this project by providing construction oversight, sample support, and Completion Report production.

Technical Support, Site 17 Soils Screening Operation at Site 11 (ESS), 126566, U.S. Navy, Indian Head, MD, 08/2008 - 12/2008

Mr. Hart assisted in the preparation of the site ESS to obtain clearance from NOSSA and the DDESB to screen soil for disposal that possibly contained MEC or MPPEH. The soils from Site 17 were originally screened for MEC, however, MEC was later found near the screened soil stockpile which had been placed at Site 11. The ESS addressed the re-screening of the stockpiled material at Site 11. This ESS received DDESB approval on December 30, 2008.

QC Representative / Technical Support, Site 30 Removal Action, 126647, U.S. Navy, Williamsburg, VA, 07/2007 - 12/2008

The overall objective of this removal action was to mitigate direct contact by human and ecological receptors with contaminated soil through removal and disposal of contaminated soil.

Unexploded ordnance construction support was required for nearly the entire life of the project. Approximately 39,800 cubic yards of soil and debris were excavated from the site. The soils were contaminated with arsenic, lead, antimony, and thallium. Following the removal of the debris and contaminated soil, the site was regraded and restored.

Final Totals:

51,453 tons of contaminated material was excavated and disposed of from the uplands portion of Site 30.

69 tons of scrap metal was sent off to a recycling facility.

256 tons of asbestos containing transite tiles were excavated and disposed of through a subcontracted asbestos abatement contractor.

431 munitions of explosive concern (MEC) items were discovered at the site. All items were found to be inert.

Mr. Hart assisted in Work Plan preparations and also provided on-site construction oversight, soil sampling support, and site QC support.

Awards/Client Commendations:

Received letter of appreciation from the facility for the work performed at Site 30 dated August 1, 2008.

Sample Technician, Yorktown Fuel Farm O&M, 120033, U.S. Navy, Yorktown, VA, 12/2006 - 12/2008

The Shaw groundwater treatment plant located in Yorktown, Virginia is primarily used to recover Navy Special Fuel Oil (NSFO), which is the result of years of leaking underground storage tanks. Mr. Hart acted primarily as a sample technician collecting monthly and quarterly groundwater/treated water and also performed in-field tests using the Dexsil HydroSCOUT oil/water testing system. The goal of the in-field testing of the recovered NSFO was to calculate the percent water of its composition in order to accurately judge its recyclable value and to provide a number to compare with the results achieved by the recycling vendor. With this test Shaw was able to accurately predict the amount of undesired water in the recovered oil and was able to make an educated decision as to whether or not the oil needed further settling time before Shaw shipped it offsite.

Site QC Manager / Sample Technician, Vieques Removal Actions SWMU 6, & 7 and AOC J, & R (Waste Characterization), 116701, U.S. Navy, Vieques, PR, 02/2008 - 02/2008

The overall goal of the waste characterization being performed at sites SWMU 6, SWMU 7, AOC R, and AOC J was to characterize the soil that may be disposed during an upcoming removal action and to decide whether or not the material will be suitable for use as daily cover at the local landfill. A total of 54 waste characterization samples, not including required QC samples, were collected over a four day period. Mr. Hart performed duties both as a sample technician and QC manager for this phase of the project.



**Accomplishments:**

The sampling event was completed a day ahead of schedule resulting in an early demobilization.

QC Representative / Technical Support, Existing Landfill Closure, 110050, U.S. Navy, Ceiba, PR, \$7,213,913.00, 03/2007 - 08/2007

Mr. Hart was a member of a five engineer rotating team, assisting on the project for a duration of 12 weeks between March and August of 2007. Typical duties performed included utilizing a survey total station to place grade stakes, Quality Control support, soil sampling, data interpretation and input, and general field support. Mr. Hart also assisted in preparation of various submittals throughout his time on-site.

Sample Technician, Parole Town Center Ground Water Sampling Event, 108520, Parole Town Center, Parole, MD, 11/2006 - 11/2006

Mr. Hart assisted with the sampling and shipment of 31 groundwater sampling wells for VOCs and Chloride. Utilized low-flow sampling technique using a bladder pump/control box setup with a HORIBA flow-through cell. Was able to complete the sampling job at a heavily active commercial construction site, in adverse weather conditions.

**Other Comments:**

The project which this sampling event was in support of went on to receive the National 2009 Phoenix Award for Excellence in Brownfield Redevelopment.

**05/2005 - 08/2005**

***Biological Geographic Information System (GIS) Intern, United States Fish and Wildlife Service, J.N. "Ding" Darling National Wildlife Refuge, Sanibel, Florida***

Primarily assisted Refuge biologist with day-to-day GIS (ESRI ArcGIS) and GPS (Trimble GeoXM) needs. Also assisted with routine water quality and wildlife inventory surveys.

**Awards/Honors**

Targeting Zero - Twelve Months With No Incidents - AFETA Camp Peary Program, Shaw E&I, Inc., 2009

Presidents Award (1,000 Days with Zero Incidents) AFETA Camp Peary, Shaw E&I, Inc., 2009

Targeting Zero - Twelve Months With No Incidents - NAVFAC Atlantic Camp Peary Removal Actions RAC IV CTO 97, Shaw E&I, Inc, 2008

Presidents Award (3,000 Days with Zero Incidents) Yorktown Fuel Farm O&M, Shaw E&I, Inc., 2007

**Figure III-1**  
**Site QC Manager/Representative – Letter of Appointment**



A World of **Solutions**™

February 18, 2011

Michael Hart  
Shaw Environmental and Infrastructure, Inc.  
500 East Main Street; Suite 1630  
Norfolk, VA 23510

RE: Site QC Manager  
Contract N62470-08-D-1007  
Task Order JU46  
Removal Actions at Site 19 and 27  
Indian Head, Maryland

Dear Mr. Hart:

This letter will serve as your appointment as the Site Quality Control Manager on the referenced project and will also clarify your duties and authority in this position. In this position, you will be authorized to use available resources to satisfy all applicable requirements of the Program and Task Order Quality Control Plans.

This authorization specifically gives you the authority to direct removal and replacement or correction of nonconforming materials or work and stop work authority when continuation would be unsafe to personnel, harmful to the environment, or result in a significant degradation of quality.

You will be expected to work closely with the Project Manager, Site Superintendent and other project personnel, but you will not be directly responsible to anyone but me for resolution of quality issues when working in the capacity of Site Quality Control Manager.

If you have any question in this matter, please call me at (412) 380-6115.

Respectfully,

Ernest P. Duke  
Program QC Manager  
LANTDIV RAC Program

## EXHIBITS

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**EXHIBIT IV-1**

<b>SUBCONTRACTOR LIST</b> <b>Shaw Environmental and Infrastructure, Inc.</b> <b>Removal Actions at Sites 19 and 27</b> <b>Naval Support Facility Indian Head, Indian Head, Maryland</b> <b>Task Order No. JU46</b>	
<b>COMPANY NAME AND ADDRESS</b>	<b>DESCRIPTION OF SERVICES PROVIDED</b>
Chemtech	Chemical Analytical Testing
Earthcare Solutions	Transportation and Disposal Services

EXHIBIT V-1  
 SUBMITTAL REGISTER

Task Order No. JU46 Contract No. N62470-08-D-1007						Project No. 140662 Project Title: Removal Actions at Sites 19 and 27 Naval Support Facility Indian Head, Indian Head, Maryland						Revision No. 01 Shaw Environmental and Infrastructure, Inc.			
Spec. Sect.	SD Number and Submittal Description	Spec Paragraph Number	Approving Authority	Other Reviewers	Transmittal Control No.	Planned Submittal Date	Contractor Action			Approving Authority			Date Rcvd from Appx Auth	Remarks	
							Action Code	Date of Action	Date Forwarded to App. Auth/ from Contr	Date Forward to Other Reviewer	Date Rcvd from Other Reviewer	Action Code			Date of Action
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)
	<b>SD-01 Preconstruction</b>														
	Work Plan		G												
	Site Specific Health and Safety Plan		G												
	Construction Quality Control Plan		G												
	<b>SD-11 Closeout Submittals</b>														
	Contractor's Closeout Report														
	Status Reports														
	QC Meeting Minutes														
	Test Results Summary Report														
	Daily Contractor Production Reports														
	Daily QC Reports														
	Rework Items List														
	Documentation Photos														
	<b>SD-13 Certifications</b>														
	Testing Laboratory Accreditation														
	<b>SD-10 Test Reports</b>														
	Laboratory Waste Profiling Analysis														
	Laboratory Clean Fill Analysis														
	<b>SD-08 Statements</b>														
	Treatment/Disposal Facility Permits														
	<b>SD-18 Records</b>														
	Waste Shipment Manifests														

Notes:

Approved By:

G: Government

Blank: QC Manager

Refer to the SNR Management Process

ACTION CODES

A: Approved

AN: Approved as Noted

NR: Not Reviewed

RR: Disapproved; Revise and Resubmit

EXHIBITS

**EXHIBIT V-2**

<b>LIST OF PERSONNEL AUTHORIZED TO REVIEW AND CERTIFY SUBMITTALS</b> <b>Shaw Environmental and Infrastructure, Inc.</b> <b>Removal Actions at Sites 19 and 27</b> <b>Naval Support Facility Indian Head, Indian Head, Maryland</b> <b>Task Order No. JU46</b>		
	SUBMITTAL TYPE:	AUTHORIZED PERSONNEL:
Work Plan Submittals	Preconstruction	Project Manager
All Work Plan/ Addendum Sections (1)	All Types	QC Manager, Program QC Manager, Project Manager and Site Engineer

(1) Note: Submittals requiring Government approval - QC Manager shall perform the final review and certification.  
 Submittals requiring Contractor approval - QC Manager shall perform the final review and approval.

**EXHIBIT VII-1**

<b>TESTING PLAN AND LOG</b> <b>Shaw Environmental and Infrastructure, Inc.</b> <b>Removal Actions at Sites 19 and 27</b> <b>Naval Support Facility Indian Head, Indian Head, Maryland</b> <b>Task Order No. JU46</b>											
CONTRACT NUMBER			PROJECT TITLE: Removal Actions at Sites 19 and 27								
N62470-08-D-1007			LOCATION: NSF Indian Head, Indian Head, MD								
WORK PLAN SECTION AND PARAGRAPH NUMBER	ITEM OF WORK	TEST REQUIRED	ACCREDITED/ APPROVED LAB		SAMPLED BY	TESTED BY	LOCATION OF TEST		DATE COMPLETED	DATE FORWARDED TO CONTR. OFF.	REMARKS
			YES	NO			ON SITE	OFF SITE			
WP 3.7 and 4.1	Waste Characterization Analysis	TCLP Volatiles, TCLP Semivolatiles, TCLP Pesticides, TCLP Herbicides, TCLP Metals, PCBs, RCI, TPH GRO and DRO.									One five-point composite sample collected for each site (Sites 19 and 27)
WP 3.9 and 4.2	Clean Fill Analysis	TCL VOC, TCL Semi-VOC, Pesticides, PCBs, TAL Metals, Cyanide. TPH DRO and GRO.									One five-point composite sample for each fill material (common fill and topsoil) for each source.

**EXHIBIT VIII-1**

[illegible]



[illegible]

## EXHIBIT IX-2

<b>CONTRACTOR QUALITY CONTROL REPORT</b>				Report No.		
Shaw Environmental, Inc. CONTRACT: N62470-08-D-1007 CTO JU46				Date		
PHASE	(BLANK - NOT APPLICABLE)	YES	NO	IDENTIFY DEFINABLE FEATURE OF WORK, SPECIFICATION SECTION, LOCATION AND LIST PERSONNEL PRESENT		
<b>PREPARATORY</b>	PLANS AND SPECS HAVE BEEN REVIEWED	<input type="checkbox"/>	<input type="checkbox"/>	Definable feature/s of work		
	THE SUBMITTALS HAVE BEEN APPROVED	<input type="checkbox"/>	<input type="checkbox"/>			
	MATERIALS COMPLY WITH APPROVED SUBMITTALS	<input type="checkbox"/>	<input type="checkbox"/>			
	MATERIALS STORED PROPERLY	<input type="checkbox"/>	<input type="checkbox"/>			
	PRELIMINARY WORK WAS DONE CORRECTLY	<input type="checkbox"/>	<input type="checkbox"/>			
	TESTING PLAN HAS BEEN REVIEWED	<input type="checkbox"/>	<input type="checkbox"/>			
	WORK METHOD AND SCHEDULE DISCUSSED	<input type="checkbox"/>	<input type="checkbox"/>			
	JOB SAFETY / HAZARD ANALYSIS ADDRESSED	<input type="checkbox"/>	<input type="checkbox"/>			
	<b>INITIAL</b>	PRELIMINARY WORK WAS DONE CORRECTLY	<input type="checkbox"/>		<input type="checkbox"/>	Definable feature/s of work
		SAMPLE HAS BEEN PREPARED/APPROVED	<input type="checkbox"/>		<input type="checkbox"/>	
WORKMANSHIP IS SATISFACTORY		<input type="checkbox"/>	<input type="checkbox"/>			
TEST RESULTS ARE ACCEPTABLE		<input type="checkbox"/>	<input type="checkbox"/>			
WORK IS IN COMPLIANCE WITH THE CONTRACT		<input type="checkbox"/>	<input type="checkbox"/>			
WORK COMPLIES WITH SAFETY REQUIREMENTS		<input type="checkbox"/>	<input type="checkbox"/>			
<b>FOLLOW-UP</b>		WORK COMPLIES WITH CONTRACT AS APPROVED INITIAL PHASE	<input type="checkbox"/>	<input type="checkbox"/>	Definable feature/s of work	
	WORK COMPLIES WITH SAFETY REQUIREMENTS	<input type="checkbox"/>	<input type="checkbox"/>			
REWORK ITEMS IDENTIFIED TODAY (NOT CORRECTED BY CLOSE OF BUSINESS)				REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)		
REMARKS:						
<p>On behalf of the contractor, I certify that this report is completed and correct and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>QC MANAGER</p> </div> <div style="width: 45%;"> <p>DATE</p> </div> </div>						
<b>GOVERNMENT QUALITY ASSURANCE REPORT</b>				DATE		
QUALITY ASSURANCE REPRESENTATIVE'S REMARKS AND/OR EXCEPTIONS TO THE REPORT						
GOVERNMENT QUALITY ASSURANCE MANAGER				DATE		

**EXHIBIT X-1**

<b>QUALITY CONTROL INSPECTION PLAN</b> <b>Shaw Environmental and Infrastructure, Inc.</b> <b>Removal Actions at Sites 19 and 27</b> <b>Naval Support Facility Indian Head, Indian Head, Maryland</b> <b>Task Order No. JU46</b>								
Specification/ Work Plan Section	Definable Feature of Work	Subtasks	Control Check Verification					
			Date	Preparatory Phase Checklist/Report No.	Date	Initial Phase Checklist/Report No.		Follow-up Phase Checklist/Report No.
WP 3.2, 3.3, 3.5	Mobilization and Site Preparation							
		Site 19 Setup.						
		Dig Permit for Site 19.						
		Erosion and Sediment Control Measures Site 19.						
		Construction Entrance at Site 19.						
		Temporary Stockpile Area at Site 19.						
		Initial Survey at Site 19.						
WP 3.4	Vegetative Clearing							
		Limited Clearing and Grubbing at Site 19.						
WP 3.6	Surface and Subsurface Removal Actions							
		Removal of contaminated soil upper-excavation (0- 0.5 ft bgs) at Site 19.						
		Removal of contaminated soil mid-excavation (0-2 ft bgs) at Site 19.						
		Removal of contaminated soil lower-excavation (0-4 ft bgs) at Site 19.						
WP 3.7, 4.1	Waste Disposal Sampling							
		Waste Characterization at Site 19						
WP 3.8	Transportation and Disposal							
		Dispose of contaminated soil from Site 19 at a Navy approved disposal facility.						

**EXHIBIT X-1**

<b>QUALITY CONTROL INSPECTION PLAN</b> <b>Shaw Environmental and Infrastructure, Inc.</b> <b>Removal Actions at Sites 19 and 27</b> <b>Naval Support Facility Indian Head, Indian Head, Maryland</b> <b>Task Order No. JU46</b>								
<b>WP 3.9</b>	<b>Site Restoration</b>							
		Clean Fill Sampling and Navy approval for Site 19.						
		Backfill all disturbed areas to existing grade at Site 19.						
		Final Survey at Site 19.						
		Restore vegetation at Site 19 in accordance to Drawing ES-03 of Appendix C.						

## EXHIBIT XI-1

<b>PERSONNEL MATRIX</b> <b>Shaw Environmental and Infrastructure, Inc.</b> <b>Removal Actions at Sites 19 and 27</b> <b>Naval Support Facility Indian Head, Indian Head, Maryland</b> <b>Task Order No. JU46</b>			
SPECIFICATION SECTION	SUBMITTALS TO BE REVIEWED BY:	THREE PHASE TO BE PERFORMED BY:	TESTING TO BE VERIFIED BY:
All Sections	Site QC Manager (1), Program QC Manager, Project Manager or Project Engineer	Site QC Manager	Site QC Manager

(1) Note: Submittals requiring Government approval - Site QC Manager shall perform the final review and certification.  
 Submittals requiring Contractor approval - Site QC Manager shall perform the final review and approval.

# APPENDIX B

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## *ACCIDENT PREVENTION PLAN*



*FINAL*  
ACCIDENT PREVENTION PLAN  
REMOVAL ACTIONS AT SITES 19 AND 27  
NAVAL SUPPORT FACILITY INDIAN HEAD  
INDIAN HEAD, MARYLAND  
CONTRACT NO. N62470-08-D-1007

Prepared for:  
**Naval Facilities Engineering Command Mid Atlantic**  
6506 Hampton Blvd.  
Norfolk, Virginia 23508

Prepared by:  
**Shaw Environmental and Infrastructure, Inc.**  
500 East Main Street, Suite 1630  
Norfolk, Virginia 23510

TASK ORDER JU46  
SHAW PROJECT NO. 140662

**FEBRUARY 2011**

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## *ACCIDENT PREVENTION PLAN DISCLAIMER*

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This Accident Prevention Plan (APP) has been designed for the methods presently contemplated by Shaw Environmental and Infrastructure, Inc. (herein referred to as Shaw) for execution of proposed work and to be used in conjunction with the Site Health and Safety Plan (SHSP), included as **Attachment 2** of this APP. Therefore, the APP may not be appropriate if the work is not performed by or using the methods presently contemplated by Shaw. In addition, as the work is performed, conditions different from those anticipated may be encountered and the APP may have to be modified. Therefore, Shaw only makes representations of warranties as to the adequacy of the APP for currently anticipated activities and conditions.



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Attachment 4	Guidelines for Standard Safety Disciplinary Actions Acknowledgment Form
Attachment 5	Incident Notification, Reporting, and Management Procedure
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*LIST OF ACRONYMS AND ABBREVIATIONS*


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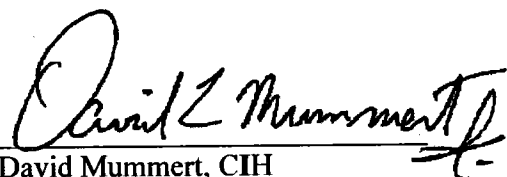
°F	degrees Fahrenheit
ACGIH	American Conference of Governmental Industrial Hygienists
AHA	Activity Hazard Analysis
ANSI	American National Standards Institute
APP	Accident Prevention Plan
CFR	Code of Federal Regulations
CIH	Certified Industrial Hygienist
COR	Contracting Officer's Representative
CPR	Cardiopulmonary Resuscitation
CSP	Certified Safety Professional
EHS	environmental, health, and safety
EM-385	Safety and Health Requirements Manual Engineering Manual, EM 385-1-1
EMS	Emergency Medical Services
EZ	exclusion zone
H&S	health and safety
HARP	Hazard Assessment Resolution Process
HERO	Hazards of Electromagnetic Radiation to Ordnance
HSM	Health and Safety Manager
JSA	Job Safety Analysis
MSDS	Material Safety Data Sheet
MCB	Marine Corps Base
NAVFAC	Naval Facilities Engineering Command
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
PM	Project Manager
PPE	personal protective equipment
RPM	Remedial Project Manager
Shaw	Shaw Environmental and Infrastructure, Inc.
SSHP	Site Safety and Health Plan
SOW	scope of work
SS	Site Superintendent
SSHO	Site Safety and Health Officer
TLV	Threshold Limit Values
USACE	U.S. Army Corps of Engineers

**1.0 SIGNATURE SHEET**

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Prepared by:  Date: February 17, 2011  
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Program Health and Safety Manager  
(Qualified Person)

Approved by:  Date: February 17, 2011  
Steve Carriere  
Project Manager

Concurred by:  Date: February 17, 2011  
David Mummert, CIH  
Program Certified Industrial Hygienist

## 2.0 BACKGROUND INFORMATION

### 2.1 SCOPE OF WORK

Shaw was contracted by the Department of the Navy, Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic to remove and dispose of surface and subsurface contaminated soil at Sites 19 and Site 27 (**Figure 1**), at the Naval Support Facility Indian Head (NSF-IH) in Charles County, Maryland, under Task Order (TO) JU46. This Work Plan has been prepared under the Department of the Navy, Naval Facilities Engineering Command (NAVFAC) Washington Contract Number N62470-08-D-1007. This removal action is part of the Installation Restoration (IR) program at NSF-IH. The Removal Action Objectives (RAOs) for Sites 19 and Site 27 are to remove and dispose of contaminated soil, ensure that the soil left in place does not represent an unacceptable risk to human health and the ecological environment, and ensure that it does not provide a continuing source of contamination to soil beyond Silo Road (at Site 19) and around the concrete pad (at Site 27).

The Work Plan provides a detailed description of the removal activities to be performed at Site 19 and Site 27, and the activities are summarized as follows:

- Mobilization of personnel and equipment;
- Clearing and grubbing;
- Waste Characterization;
- Site setup;
- Excavation of soil and stockpiling of soil;
- Material load out/transportation and disposal;
- Site restoration;
- Site survey; and
- Demobilization of personnel and equipment.



### 3.0 *POLICY STATEMENT*

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This section presents the corporate safety policy, as well as safety program and accident experience goals.

#### 3.1 CORPORATE SAFETY POLICY

Shaw expects all of our employees, clients, and partners to uphold the highest environmental, health, and safety (EHS) standards to promote a positive and proactive safety attitude and to exhibit a heightened awareness of their surroundings both on and off the job. We must identify risks and hazards and implement appropriate controls in order to provide an injury-free work environment where people, equipment, and the environment are not placed at unreasonable threat of injury or damage. We will continually strive to be good citizens in our own community, as well as in every community in which we operate.

The EHS Program and the components of our Occupational Health & Safety Management System have been developed to guide us in our daily activities. We also commit ourselves to continual improvement in EHS management. Further, I ask that you include our EHS process in all aspects of your work, assist in the maintenance of our process, and communicate this policy to all persons working for or on behalf of Shaw with the intent that they are made aware of their individual EHS obligations.

Through compliance with this policy, we will all actively participate in this process and advocate this philosophy. Together, we can accomplish our goals and exceed the minimum requirements provided by applicable laws and regulations, thus resulting in all stakeholders being proud to be a part of a team that truly values the importance of health, safety, and respect for the environment. Accordingly, we will maintain the position as a recognized leader in all of our business endeavors through a stewardship-based approach for our fellow employees, the environment, and the communities in which we live and work.

We are committed to the spirit and intent of this EHS policy statement and the laws, rules, and regulations to which we subscribe at its foundation.

George Bevan  
President  
Shaw Environmental and Infrastructure, Inc.

### 3.2 SAFETY PROGRAM GOALS, OBJECTIVES, AND ACCIDENT EXPERIENCE GOALS

Shaw considers safety the highest priority during work at a site containing potentially hazardous materials and has established a goal of **zero incidents** for all projects. All projects will be conducted in a manner that minimizes the probability of near misses, equipment/property damage, or injury. Shaw will establish programs to recognize people and projects that demonstrate excellence in safety performance. Shaw will use safety observation programs to identify and correct unsafe acts and conditions. Safety awareness programs will be used to provide continuous training and development of good safety practices. Shaw site supervision will investigate all incidents to determine root causes and institute corrective actions to prevent recurrence. Shaw will provide and enforce safety rules to protect employees, subcontractors, clients, and the public.

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## 4.0 RESPONSIBILITIES AND LINES OF AUTHORITIES

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Shaw is ultimately responsible for the implementation of the health and safety program.

### 4.1 EMPLOYER ULTIMATE RESPONSIBILITIES

Managers must conduct their businesses in compliance with governmental safety regulations and company procedures. All applicable Shaw H&S procedures are presented in the Shaw Health and Safety Policies and Procedures Manual (Shaw, 2010) and will be implemented for conducting this project. Shaw procedures will be applied to all Shaw subcontractor organization's personnel as well.

**Table 4-1**, "Shaw's Individuals Responsible for Site Health and Safety," presents the individuals that share responsibility for health and safety at the site

**TABLE 4-1 SHAW'S INDIVIDUALS RESPONSIBLE FOR SITE HEALTH AND SAFETY**

Title	Name and Telephone Number
Project Manager	Steve Carriere, PMP (609) 234-6361 (cellular)
Site Superintendent	Brian Harris (757) 846-4423 (cellular)
Site Safety and Health Officer	Michael Hart (757) 613-1754 (cellular)
Quality Control Manager	Michael Hart (757) 613-1754 (cellular)
Program Certified Industrial Hygienist (CIH)	Dave Mummert, CIH (419) 425-6129 (office) (419) 348-1544 (cellular)
Program HSM	James Joice, CIH (419) 424-4960 (office) (419) 306-3637 (cellular)
Program Manager	Jim Dunn, PE (757) 640-6932 (office) (757) 373-9117 (cellular)
Deputy Program Manager	Bill Hughes, PG (757) 640-6937 (office) (757) 438-8498 (cellular)

## 4.2 PERSONNEL IDENTIFICATION AND ACCOUNTABILITY

The Shaw Project Manager (PM), Munitions/Range Services Center of Expertise Technical Director, Senior Unexploded Ordnance (UXO) Supervisor (SUXOS), UXO Safety Officer (UXOSO), Site Safety and Health Officer (SSHO), and Program Health and Safety Manager (HSM) are responsible for implementing this APP and enforcing the health and safety requirements. **Table 4-1** identifies the individuals that share responsibility for health and safety at the site.

### 4.2.1 On-site Personnel

All on-site personnel are responsible for continuous adherence to safety and health procedures during the performance of assigned work. In no case may work be performed in a manner that conflicts with the inherent safety and environmental precautions outlined in this APP. After due

warning personnel violating safety procedures will be dismissed from the site and possibly terminated from further work.

Any person who observes unsafe acts or conditions or other safety problems has “Stop Work Authority” and shall immediately report the deficiency to supervisory personnel. If there is any dispute with regard to safety and health, on-site staff will attempt to resolve the issue and if the issue cannot be resolved on site, they will consult off-site technical staff and supervisors for assistance. The specific task or operation in question shall remain discontinued until the issue is resolved.

#### ***4.2.2 Project Manager:***

The Shaw PM has the overall responsibility for this project and will assure that the requirements of the contract are performed in a manner consistent with this APP and other contract-specific requirements. The PM is the focal point of contact with NAVFAC regarding the project. The PM has ultimate authority and responsibility for the establishment and maintenance of project administration control procedures. The PM issues communications to the NAVFAC on the project status. Specifically, the PM is ultimately responsible for the development, implementation, and enforcement of the comprehensive Safety and Health Program.

#### ***4.2.3 Project Engineer/Site Quality Control Manager***

The Shaw Project Engineer/Site QC Manager will be responsible for the management of the technical quality of the contract, including the Quality Control/Quality Assurance Program. The Project Engineer/Site QC Manager will direct the development and implementation of the Quality Control/Quality Assurance Program and ensure the H&S Program is adequately implemented. The Project Engineer/Site QC Manager is experienced and knowledgeable in the field of environmental investigation and remediation and shall be the primary point of contact for technical coordination of project requirements.

#### ***4.2.4 Site Safety and Health Officer***

The Shaw SSHO assures operations are conducted in accordance with this APP, NAVFAC requirements, and OSHA regulations. The SSHO has the authority to suspend operations at the project due to noncompliance. An Alternate SSHO must be assigned for the project when the SSHO is not physically present at the project site. The SSHO has the overall responsibility to conduct exposure monitoring and/or air sampling and to select and/or adjust personal protective

equipment (PPE) use. The SSHO shall have the authority and is responsible for the following actions:

- Be present during operations to implement this APP,
- Inspect site activities to identify safety and occupational health deficiencies and correct them,
- Coordinate changes/modifications to this APP with the Shaw HSM and PM,
- Conduct project-specific training, and

Inspections completed by the SSHO will also be used to determine if operations are being conducted in accordance with this APP, NAVFAC requirements, and OSHA regulations. These inspections shall be documented – deficiencies to be corrected shall be noted as an action item list and provided to the HSM for follow-up. Daily safety inspections shall be documented on the Daily Safety Inspection Report (**Appendix E** of the SSHP). Copies of the inspections will be provided to the NAVFAC, if requested.

Other SSHO responsibilities include the following:

- General Safety and Health Program administration,
- On-site contact for regulatory agencies on matters of safety and health,
- Establish employee exposure monitoring notification programs,
- Investigate significant accidents and illnesses and implement corrective action plans,
- Implement all safety procedures and operations on site,
- Observe work party members for symptoms of on-site exposure or stress,
- Arrange for the availability of on-site emergency medical care and first aid, as necessary,
- Determine evacuation routes, verify that an effective means of emergency communication is always available while workers are on site, establish and post local emergency telephone numbers, and arrange emergency transportation,
- Establish work zones,
- Present tailgate safety meetings and maintaining attendance logs and records,
- Verifying that the respiratory protection program is implemented, when necessary,
- Verifying that decontamination procedures meet established criteria, when necessary, and
- Monitoring employee work hours and limit those work hours that are excessive.

At a minimum, the SSHO must have completed the 30-hour OSHA construction safety class or as an equivalent, five years of construction industry safety experience or three years if he possesses a Certified Safety Professional (CSP) or safety and health degree, 30 hours of formal construction safety and health training covering the subjects of the OSHA 30-hour course applicable to the work to be performed and given by qualified instructors. A resume for the SSHO is included as **Attachment 2**, "Safety Personnel Resumes and Proof of Training and Competency."

#### **4.2.5 Program Health and Safety Manager**

The HSM is responsible for the following actions:

- Develops, maintains, and oversees implementation of this APP,
- Visit the project as needed to audit the effectiveness of this APP,
- Remain available for project emergencies,
- Develop modifications to this APP as needed,
- Evaluate occupational exposure monitoring/air sampling data and adjust APP requirements as necessary, and
- Approves the APP by signature.

A resume for the HSM is included as **Attachment 3**, "Safety Personnel Resumes and Proof of Training and Competency."

#### **4.3 COMPETENT PERSONS QUALIFICATIONS**

Mr. Michael Hart is responsible for serving as Shaw's Competent Person functioning as the SSHO for this project as defined by Engineering Manual (EM) 385-1-1, Safety and Health Requirements Manual (USACE, 2008a). When the SSHO/Competent Person is not on-site, an alternate Competent Person will be used for this project.

Mr. Michael Hart is responsible for serving as Shaw's Competent Person(s) for this project as defined by 29 Code of Federal Regulations (CFR) 1926.32(f). His resume list the training required for any additional competent person(s) qualifications.

The names of the competent/qualified person(s) required for a particular activity (i.e., excavation, diving, etc.), as specified by OSHA, will be identified and included in the AHAs.

Those listed will be competent/ qualified for the type of work involved and familiar with current site safety issues. If a new competent/qualified person (not on the original list) is added, the list will be updated (this is an administrative action not requiring an updated AHA). The new person will acknowledge in writing that he/she has reviewed the AHA and is familiar with current site safety issues.

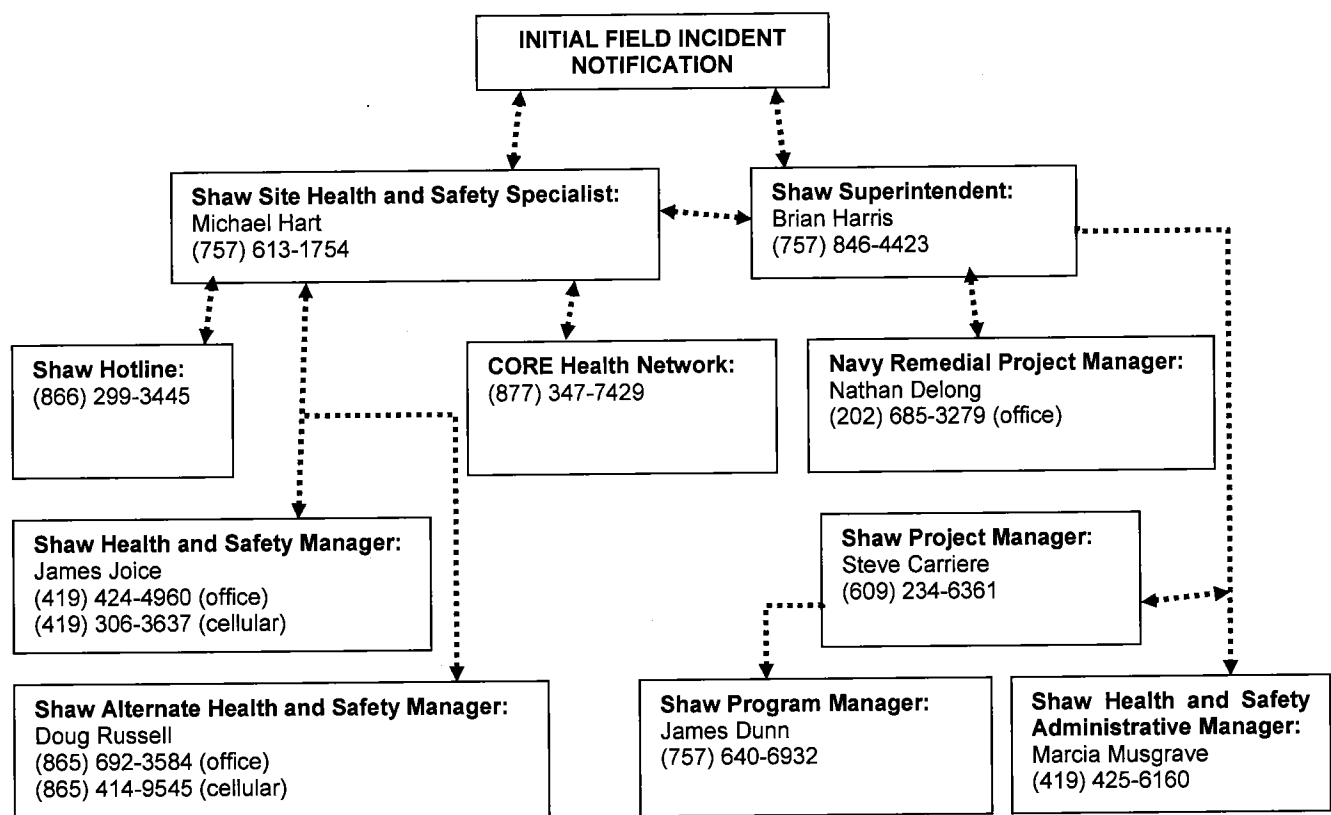
Currently, there are no requirements for additional competent and/or qualified persons to complete this scope of work. In the event that a task becomes necessary to complete with a competent and/or qualified person requirement (e.g. confined space entry), then the names of these persons will be identified and proof of their competency/qualifications will be provided.

#### 4.4 COMPETENT PERSON REQUIREMENTS

No work will be performed unless the Competent Person or the designated alternate Competent Person is present on the job site.



**Figure 4.2 Incident Notification, Reporting, and Management Procedure  
Flow Chart**



.....> Lines of Communication (note: Alternate Health and Safety Manager will only be notified if primary Health and Safety Manager is unavailable.)

#### 4.5 PRE-TASK SAFETY AND HEALTH ANALYSIS

The Activity Hazard Analyses (AHAs) identify potential safety, health, and environmental hazards associated with specific tasks and provide protective measures for personnel, the community, and the environment. Copies of the AHAs for this project are included as Appendix B of the SSHP (**Attachment 2**).

The AHAs will be developed for all major tasks performed for the project and included in the APP. The AHAs will be reviewed and modified by the SSHO (with input from field employees

and subcontractors). An AHA will also be prepared when new tasks are added, the job situation changes, or when it becomes necessary to alter safety requirements. Work will not proceed on a particular task/phase until the AHA has been reviewed with the work crews. Additions or changes to the AHAs, which are less conservative or allow for a downgrade in PPE requirements, must have written approval from Shaw's HSM.

The names of the competent/qualified person(s) required for a particular activity (*i.e.*, excavations, scaffolding, fall protection, and other activities) will be identified and included in the AHA.

The AHAs will be reviewed and modified throughout the workday, as necessary, to address changing site conditions, operations, or changes of competent/qualified person(s). AHAs will also be reviewed and modified during the daily tailgate safety and JSA meetings. Modifications will be handwritten in ink on the specific AHA. If more than one competent/qualified person will be used on the AHA, a list of names will be included as an attachment to the AHA. Those listed will be competent / qualified for the type of work involved and familiar with current site safety issues. If a new competent/qualified person (not on the original list) is added, the list will be updated (this is an administrative action not requiring an updated AHA). The new person will acknowledge, in writing, that he/she has reviewed the AHA and is familiar with current site safety issues.

#### **4.5.1 Job Safety Analysis**

Job Safety Analyses (JSA) must be completed by the crews each day for each task that will be accomplished, as required by Shaw Procedure No. HS045, "*Job Safety Analysis*" (2010). The JSA shall be revised, as necessary, when unforeseen circumstances arise or work-site conditions change. Any revisions shall be immediately communicated with the affected site workers. If the need to complete an unplanned task becomes necessary at any point throughout the day, then a new JSA shall be prepared to cover that task. Job Safety Analyses shall be completed using the JSA Checklist Form and JSA Worksheet Form. Copies of all safety forms are included as Attachment 4 of the SHSP.

#### **4.5.2 Hazard Assessment Resolution Process**

The Hazard Assessment Resolution Process (HARP) is a brief, paperless, general risk assessment made by employees in each work area. The objective of HARP is to identify and eliminate or control potential real-time workplace hazards that could lead to an accident.

The HARP requires workers to take time (2 minutes) before starting a job to become aware of the immediate work environment so as to detect conditions unanticipated by initial work planning. This involves a three-step process:

- Assess the hazard(s) and risk(s) to identify what could go wrong and what is the worst thing that could happen.
- Analyze the situation to determine how to reduce the risks. Evaluate each identified risk and implement the appropriate safeguards to control the hazards.
- Act to ensure safe operations:
  - Take the necessary steps to complete the job safely.
  - Follow written standards and procedures (APP, AHAs, JSAs, *etc.*).
  - Do not proceed until the work environment is safe.

In performing the HARP, focus attention on surroundings, equipment, tools, PPE, and critical steps prior to focusing on the task; consider the chemical, physical, and environmental hazards associated with the task.

Risk reduction is a critical component of HARP. The following risks shall be avoided:

- Hurrying,
- Presuming the job is routine or simple,
- Believing that nothing bad can happen,
- Not talking about precautions with co-workers,
- Not raising a “gut feel.”

The appropriate hazard resolution and corrective actions must take place before proceeding with the task:

- Communicate hazards and precautions to take with co-workers and supervisor.
- Eliminate or control the hazards. The implementation of administrative controls is sometimes effective, *i.e.*, marking the hazard with warning tape, signs, or tags.
- If the risk is unacceptable or if a hazard cannot be satisfactorily controlled, then stop work and contact the SSHO or HSM.

#### 4.6 SAFETY OBSERVATION PROGRAM

Safety observations are behavior-based and provide a systematic feedback process between line personnel and supervisors to proactively identify opportunities for safety improvement in work areas.

Employees engaged in work activities are often the most knowledgeable about the hazards of their work and can provide valuable feedback on unsafe conditions and unsafe practices, which may require corrective action.

The Safety Observation Program is a tool for employees to provide information on actual or potential safety hazards that they observe in their work place, which if left unreported, may result in an accident and or injury. This program also provides a mechanism for recommending corrective actions.

Key benefits of the Shaw Safety Observation Program include the following:

- Identifies practices that could cause accidents, injuries, or damage.
- Identifies specific needs for coaching and training.
- Checks the adequacy of the HSP, AHAs, JSAs, and compliance with general site rules and other procedures.
- Monitors the effectiveness of training.

The SSHO must develop a schedule for conducting safety observations. A general guideline for the number of observations in a week is one observation per 100 work hours on the project. The schedule for observation(s) shall be communicated to site personnel.

The volunteer conducting the safety observation shall record their findings on the Safety Observation Reporting Card, as required by Shaw Procedure No. HS026, "Safety Observation Program" (2010). Tasks or items that require follow-up because of serious risk potential must be addressed immediately by the SS. Items with lesser risk should be discussed in the next tailgate safety meeting. The action items and corrective actions, including dates and responsible person(s), shall be documented on the Safety and Occupational Health Deficiency Tracking Log and be maintained and available for inspection.

#### 4.7 NONCOMPLIANCE WITH SAFETY REQUIREMENTS

To protect the health and safety of all personnel, employees that knowingly disregard safety policies/procedures may be subject to disciplinary actions up to and including termination. A mechanism is necessary to apply disciplinary action consistently to employees who jeopardize the safety of themselves and their coworkers by not following the established plans, policies, and procedures. Therefore, Shaw Environmental and Infrastructure, Inc., Guide – 004, “Guidelines for Standard Safety Disciplinary Actions” (Shaw, 2009) is applicable and in effect for this project. A copy of these guidelines and the acknowledgement form are included as Attachment 4, “Guidelines for Standard Safety Disciplinary Actions and Acknowledgment” of this APP.

#### 4.8 CONTRACTOR EMPLOYEE SAFETY RESPONSIBILITY REQUIREMENTS

A successful safety program is achieved by the following:

- Assigning qualified personnel,
- Providing the necessary training and orientation,
- Adequately planning for the work and following the plans,
- Adhering to the policies and procedures,
- Reinforcing positive behavior,
- Rewarding safe performance.

##### 4.8.1 *Management Safety Accountability*

The Shaw safety policy specially states: “Shaw expects all of our employees, clients, and partners to uphold the highest EHS standards to promote a positive and proactive safety attitude and to exhibit a heightened awareness of their surroundings both on and off the job.”

All Contractor employees have the right and the duty to stop work when unsafe conditions exist. Shaw Procedure No. HS040, “*Stop Work Authority*” (2010) details these responsibilities.

Among the many Shaw safety programs, Shaw senior managers are required to perform Leadership Safety Assessments. These assessments provide safety accountability for Shaw Managers.

#### 4.8.2 Contractor Safety Incentive Programs

The Contractor has developed an NAVFAC Safety Incentive Award Program per Shaw Procedure No. HS023, “*Accident Prevention Program: Safety Incentive Award Program*” (2010). Project personnel are eligible for monthly safety awards contingent upon successful completion of safety meetings and inspections (leading safety indicators) and no OSHA recordable or vehicle accidents during the project.

#### 4.9 SAFETY AND HEALTH BULLETIN BOARD

A safety and health bulletin board or suitable alternative shall be maintained in an area commonly accessed by workers at the project site. The bulletin board shall be maintained current, in clear view of on-site workers, and protected against the elements and unauthorized removal. The SSHO shall evaluate the content of the bulletin board each week, at a minimum, and update if necessary. It shall contain at least the following safety and health information:

- Map denoting the route to the nearest emergency care facility.
- Emergency telephone numbers.
- A copy of the most up-to-date SHSP and APP shall be mounted on or adjacent to the bulletin board or state the location, which will be accessible on the site by all workers.
- A copy of current AHAs shall be mounted on or adjacent to the bulletin board or state the location, which will be accessible on the site by all workers.
- Copy of Safety and Occupational Health Deficiency Tracking Log shall be mounted on or adjacent to the bulletin board or state the location where it will be accessible by all workers upon request.
- Safety and health promotional posters.
- Date of last lost workday injury.

## 5.0 SUBCONTRACTORS AND SUPPLIERS

This section of the APP outlines general requirements for subcontractors including adoption of the Shaw APP and SHSP, correction of safety violations, and other general requirements. Each subcontractor working on the project site will be required to adhere to the APP and SHSP and the requirements presented in the following sections.

### 5.1 SUBCONTRACTOR/SUPPLIER COORDINATION AND CONTROL

Shaw has identified its subcontractors in the Project Management Plan. The HSM will screen the subcontractors for safety performance. Shaw's subcontractors will comply with the requirements for site safety as outlined in Shaw Procedure No. HS011, "Health & Safety Rules for Contractors" (2010). A list of Shaw Health and Safety Procedures are presented in Attachment 3 of the SHSP. Copies (electronic or paper) of all Shaw Health and Safety Procedures will be available at the project site at all times.

Subcontractors are required to read and sign the SHSP and comply with all requirements of this APP. Subcontractors not in compliance will be immediately dismissed from the site.

Shaw's PM and SS will be responsible for the conduct and control of Shaw's subcontractor. Shaw's HSM will review and accept any subcontractor safety plans, submittals, procedures, and programs.

### 5.2 SUBCONTRACTOR/SUPPLIER SAFETY RESPONSIBILITIES

Both Shaw and subcontractors share the responsibility for the safety and health of their employees. The following are some of the requirements that apply to subcontractors:

- All subcontractors under the direction of Shaw will report to the SS and PM.
- An assigned safety representative for each subcontractor shall be present on any day that work is being performed. The name of the assigned safety representative shall be conveyed to the SSHO.
- Subcontractors shall submit all training documents to Shaw prior to mobilization.
- Planned operations for the day shall be verbally conveyed to the SS at the beginning of each day.
- All subcontractor employees working on-site shall sign the Work-Site Entry Log at the beginning and end of each workday.

- All subcontractor personnel shall attend a project safety orientation prior to beginning work on-site.
- All subcontractor personnel shall attend the morning tailgate safety meeting and prepare JSAs. If scheduling precludes attendance, then subcontractors shall hold and document their own safety meeting. Safety meeting documentation, using the Safety Meeting Log form is to be submitted to the SSHO.
- All accidents, fires, injuries, illnesses, and spills shall be immediately reported to the SSHO.
- Heavy equipment is to be inspected prior to use at the project site by a competent mechanic. Heavy equipment shall be inspected daily by the equipment operator using the Shaw Heavy Equipment Safety Inspection Checklist form. Inspection documentation is to be submitted to the SSHO.
- Vehicles, such as trucks, vans, and automobiles are to be inspected once per week by the individual driving using the Shaw Vehicle Inspection form. Inspection documentation is to be turned into the SSHO.
- Subcontractors are required to frequently inspect work sites for safety deficiencies and correct all deficiencies. Documentation of these inspections, as well as the corrective actions implemented, is to be submitted to the SSHO every Monday morning. The Project Safety Inspection Report, Daily Safety Inspection Report, or equivalent shall be used.

Subcontractors identified to work on this project consist of the following:

*TABLE 5.1 SUBCONTRACTORS*

Subcontractor Name and Address	Services Provided
Earthcare Solutions	Transportation and Disposal Services
Your Locator Inc.	Private Utility Locator

All subcontractors, visitors, and other on-site personnel shall check in with the SS in order to verify that all appropriate entry requirements are met. All visitors will be briefed by the SSHO, SS or designee, on the hazards to be expected on the site and the safety and health controls required (such as, hard hat, foot protection, etc.). The SS will verify that all visitors entering the work-area are properly protected and are wearing or provided with the appropriate PPE. A stock of common PPE (such as hard hats, eye protection, ear plugs, reflective vests, etc.) shall be maintained at the work-area for use by visitors. The SSHO, SS, or designee will provide an



escort for all visitors while on site. Each visitor must enter his or her name, arrival time at the site, and departure time from the work-area on the sign-in log (Site Entry Log).

## 6.0 TRAINING

This section describes general training, SSHO minimum training requirements, hazardous waste operations training, safety meetings, site-specific training, hazard communication, first aid and cardiopulmonary resuscitation (CPR), and other additional training, certification, and licenses needed to work on the project site.

### 6.1 GENERAL TRAINING

The SSHO is responsible for informing all site personnel and all visitors of the contents of this APP, including all Appendices, and verifying that each person signs the APP Acknowledgment Sheet (**page iv**) and Training Acknowledgment Form (Appendix E of SSHP) prior to working on the project site. Documentation of certification of training requirements will be reviewed by the SSHO, filed on site, and submitted to NAVFAC (when requested).

### 6.2 SITE SAFETY AND HEALTH OFFICER MINIMUM TRAINING

The project SSHO shall meet the minimum requirements for safety training in accordance with EM 385-1-1, Section 01.A.17 (USACE, 2008) which indicates:

- Completion of the 30-hr OSHA Construction Safety course, or as an equivalent, 30 hrs of formal construction safety and health training covering the subjects of the OSHA 30-hour course.
- The SSHO is also required to have five (5) years of construction industry safety experience or three (3) years if they possess a Certified Safety Professional (CSP) or safety and health degree.

### 6.3 HAZARDOUS WASTE OPERATIONS TRAINING

All site personnel working in regulated areas at the project site shall meet the minimum training requirements as specified in 29 CFR 1926.65 and 29 CFR 1910.120. Regulated areas for this project shall be delineated upon project mobilization.

The following criteria are used to determine the level of training required:

- Personnel engaged in hazardous substance removal or other activities, which expose or potentially expose them to hazardous substances and health hazards, shall receive a minimum of 40 hours of instruction off site and 3 days of supervised field experience.
- Personnel who perform limited activities (*e.g.*, surveying) at the site and are not potentially exposed to contaminant levels above the permissible exposure limit shall

receive a minimum of 24 hours of instruction off site and 1 day of supervised field experience.

### **6.3.1 40-Hour Training**

The following is a general list of topics covered in the 40-hour course:

- General site safety,
- Chemical, physical, and environmental hazards,
- Key management positions responsible for site safety and health,
- Safety, health, and other hazards (including noise),
- PPE,
- Work practices by which employees can minimize risks from hazards,
- Safe use of engineering controls and equipment on site,
- Medical surveillance requirements including recognition of signs and symptoms of exposure,
- Hazard communication (Worker Right-to-Know),
- Components of the site Safety and Health Program,
- Decontamination practices for personnel and equipment,
- Confined space entry procedures, and
- Emergency response procedures.

### **6.3.2 Supervisory Training**

Site management personnel, including the SS and SSHO, will receive 8 additional hours of specialized training. The following topics are discussed:

- Overall Safety and Health Program,
- PPE Program,
- Spill containment Program, and
- Health hazard monitoring procedures and techniques.

### **6.3.3 Refresher Training**

Personnel covered by Section 6.3.1, “40-Hour Training,” are required to complete 8 hours of refresher training annually on the following topics:

- Safe work practices,
- Chemical hazard awareness,
- Hearing conservation,
- Hazard communication,
- Respirator use, and
- Confined space entry procedures.

### **6.3.4 Visitor Training**

Site access by personnel making deliveries or performing repairs to utilities, public or government officials, visitors, or local residents will be limited to support areas only. These persons will not be required to comply with the medical and training requirements as previously defined. Support zone access will be limited to designated work, delivery, or observation areas to minimize any potential exposure to site contaminants. Site observation areas will be located upwind from the exclusion zone (EZ). Weather conditions or other site activities may restrict access to these areas. Authorization for limited site access will be determined on a case-by-case basis by the SSHO in consultation with the HSM, PM, and the Navy. These personnel will be escorted on site and will be strictly prohibited from entering the EZ or the contamination reduction zone.

## **6.4 SAFETY MEETINGS**

Employees shall be provided continuing safety and health training to enable them to perform their work in a safe manner.

### **6.4.1 Daily Safety Meetings**

The SS and/or SSHO (or designee) shall conduct a safety meeting at the beginning of each shift. The topics discussed at this daily “tailgate” safety meeting shall include safety and health considerations for the day’s activities, pertinent aspects of AHAs, necessary PPE, problems encountered, and new operations. The JSAs may be prepared as a component of the morning safety meeting. Attendance records and meeting notes shall be documented on the Safety

Meeting Log (Appendix E of SSHP) and are maintained with the project files and submitted to the Navy, if requested. At the conclusion of each shift, a debriefing for site employees will be held, if necessary.

## 6.5 SITE-SPECIFIC TRAINING

All personnel working at the project site, including subcontractors, shall attend a site-specific orientation covering the following topics:

- Purpose of this SSHP and review of pertinent sections including emergency response procedures as outlined in Section 9.2, "Emergency Response Plans" of this APP.
- Pertinent provisions for safety and health contained in EM-385 (USACE, 2008).
- Review of applicable AHAs.
- Lead Awareness Training
- Provisions for medical care and facilities and the names of CPR- and first aid-trained personnel assigned to the project.
- Safety and health hazards on site and the means to control/eliminate those hazards.
- JSA preparation training.
- Procedures for reporting and correcting unsafe conditions or practices.
- Responsibilities for reporting all accidents and illnesses.
- PPE (use and care).
- Location of safety equipment (*i.e.*, fire extinguishers, first aid kits, eye-wash stations, *etc.*).
- Standard operating procedures, safety rules, and safe work practices for the project.
- Work zones and site control measures.
- Excavation operations and underground / overhead utility clearance.
- Lock-out/tag-out procedures.
- Fall protection.
- Fire prevention.
- Housekeeping.

## 6.6 HAZARD COMMUNICATION

All personnel performing field activities involving hazardous operational chemicals shall receive basic hazard communication training, which involves a review of the Contractor written hazard communication program, Material Safety Data Sheets (MSDSs) (Attachment 2 of the SSHP [Attachment1]), container labeling, chemical health hazards, and chemical hazard control procedures. Personnel shall be notified of the hazards of chemical contamination on site (if present) by reviewing Section 4.1, “Chemical Hazards” of the SSHP Attachment 1). The MSDSs for additional materials brought to the site will be reviewed with personnel prior to its use.

## 6.7 FIRST AID AND CARDIOPULMONARY RESUSCITATION

There shall be at least two persons trained and certified in both American Red Cross first aid techniques and CPR (or equivalent) on the project site. These employees will meet both the training and vaccination requirements of Shaw Procedure No. HS512, “Handling of Blood or Other Potentially Infectious Material” (2010).

## 6.8 EMERGENCY RESPONSE TRAINING

All Shaw personnel who have completed the Shaw 40-hour Hazardous Waste Operations and Emergency Response Training are qualified as emergency responders per 29 CFR 1910.120/1926.65(e)(3)(iv). Site Specific Emergency Response Procedures will be reviewed with all site personnel as a part of site indoctrination.

## 6.9 SUPERVISORY AND EMPLOYEE SAFETY MEETINGS

The Shaw SSHO will conduct daily safety meetings at the start of each work shift for on-site personnel and will require subcontractors to follow similar meeting procedures or participate in the Shaw daily safety meetings. Daily safety meetings will comply with Shaw Procedure No. HS051, “Tailgate Safety Meetings” (2010).

## 7.0 SAFETY AND HEALTH INSPECTIONS

### 7.1 SAFETY INSPECTIONS

Shaw's SSHO, Mr. Bruce McLaughlin, will conduct periodic inspections of the project site in accordance with Shaw Procedure No. HS021, "*Accident Prevention Program: Management Safety Inspections*" (2010). The SSHO will conduct daily safety inspections of work processes, site conditions, and equipment conditions. The HSM will discuss any necessary corrective actions with the SSHO. The SSHO will document all safety deficiencies and corrective actions in a written log (a copy of this log is included in Appendix E of the SSHP), which will be posted at the project safety and health bulletin board. The log will include the following:

- Date deficiency is identified,
- Description of deficiency,
- Name of person responsible for correcting deficiency,
- Projected resolution date,
- Date resolved.

### 7.2 MECHANICAL EQUIPMENT INSPECTIONS

Before any machinery or mechanized equipment is placed in use, it shall be inspected and tested in accordance with the manufacturer's recommendations and requirements of EM-385 (USACE, 2008) and shall be certified in writing by a competent person to meet the manufacturer's recommendations and requirements of the manual. Subsequent re-inspections will be conducted at least annually thereafter. These inspections shall be documented on the USACE Safety Inspection Checklist for Construction Equipment (Appendix E of the SSHP). All safety deficiencies noted during the inspection shall be corrected prior to the equipment being placed in service at the project. If at any time the machinery or mechanized equipment is removed and subsequently returned to the project (other than equipment removed for routine off-site operations as part of the project), it shall be re-inspected and re-certified prior to use. All heavy equipment shall be inspected by each operator prior to use on the project and shall then be inspected on a daily basis. Daily inspections shall be documented on the Daily Equipment Inspection form (Appendix E of the SSHP). Deficiencies in the equipment shall be noted on the form. All inspection documentation shall be submitted to the SS prior to using the equipment if safety deficiencies are observed and at the end of the day if no safety deficiencies are observed.

The SS shall immediately evaluate the inspection forms and determine if the equipment is in need of immediate repairs and if it should be "red tagged" and taken out of service. If the equipment is taken out of service, then the equipment shall not be used until the SS is satisfied that the necessary repairs have been made. For minor deficiencies that do not compromise the safe operation of the equipment, repairs shall be made at the discretion of the equipment owner. All inspection records are to be kept on file in Shaw's field office.

### 7.3 EXTERNAL INSPECTIONS/CERTIFICATIONS

Shaw does not anticipate, but may consider, the use of outside sources to provide safety inspections, as necessary.

As required, safety equipment will comply with appropriate regulations of OSHA, the National Institute for Occupational Safety and Health (NIOSH), the American National Standards Institute (ANSI), ASTM International, the U.S. Coast Guard, or other recognized certification organizations.



## 8.0 ACCIDENT REPORTING

### 8.1 EXPOSURE DATA (MAN-HOURS WORKED)

The Health and Safety Director for Shaw, who is located in Baton Rouge, Louisiana, tracks and maintains incident records for federal reporting requirements. Reporting requirements are included in Shaw Procedure No. HS020, “*Accident Prevention Program: Reporting, Prevention and Review*” (2010). NAVFAC program incident rates are reported monthly by the Program HSM.

### 8.2 ACCIDENT INVESTIGATIONS, REPORTS, AND LOGS

Project personnel are required to report all near misses, injuries, illnesses, and accidents to their immediate supervisor. The SSHO will immediately arrange appropriate medical care as required. Once immediate medical care for the injured personnel or other critical emergency procedures has been accomplished, the SSHO shall follow the Incident Notification, Reporting, and Management Procedure included in this APP as **Attachment 5**, “*Incident Notification, Reporting, and Management Procedure*.” In the event that an accident results in an employee sent to a doctor, the Return-to-Work Examination Form (**Appendix E** of the SSHP) will be completed by the attending physician on the date of treatment and will state one of the following conditions:

- Employee may return to full duty work.
- Employee may return to limited duty (with type of limitations).
- Employee is unable to return to work.

A copy of this release will accompany the accident report.

For injuries and vehicle accidents, secure the scene to prevent additional injury/incident, administer on-site first aid, and arrange for emergency assistance prior to making any other notifications. After immediate emergency attention has been given, report all incidents to the PM and HSM. All accidents shall be reported as soon as possible but not more than 24 hours afterwards to the COR. The following require immediate accident notification to the COR:

- A fatal injury,
- A permanent total disability,

- A permanent partial disability,
- The hospitalization of three or more people resulting from a single occurrence,
- Property damage of \$200,000 or more.

The SSHO will immediately investigate all near misses, injuries, illnesses, and accidents to determine the causal factors. The SSHO will document any unsafe acts or conditions that occurred or existed at the time of the accident. The SSHO shall submit the appropriate reports within 24 hours to the Shaw Safety Department in Baton Rouge, Louisiana in accordance with Shaw Procedure No. HS020, “*Accident Prevention Program: Reporting, Investigation, and Review*” (2010). The appropriate form(s) (**Appendix E** of the SSHP) to be completed include the following:

- Supervisor’s Employee Injury/Illness Report Form,
- Vehicle Accident Report,
- Equipment, Property Damage and General Liability Loss Report,
- Incident Investigation Report,
- Injured Employee Statement,
- Employee Witness Statement, and
- Accident Review Board.

Corrective actions will be determined and implemented to prevent the recurrence of the accident; and responsibility for implementation of corrective actions will be assigned. The final report and required forms will be submitted to the HSM within five (5) days of the incident. The PM shall submit the findings of the investigation along with appropriate corrective actions to the Contracting Officer’s Technical Representative in the prescribed format as soon as possible but no later than five (5) working days following the accident. Corrective actions shall be implemented as soon as reasonably possible. A log of OSHA-recordable injuries/illnesses will be maintained.

### 8.3 IMMEDIATE NOTIFICATION OF MAJOR INCIDENTS

The SSHO will report all lost time injuries to the client within 24 hours of the injury. All accidents, independent of costs, will be reported immediately to the client.

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## 9.0 PLANS REQUIRED BY THE SAFETY MANUAL

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### 9.1 LAYOUT PLANS

Work zones are defined in **Section 5.0** of the SSHP.

### 9.2 EMERGENCY RESPONSE PLANS

An emergency is defined as a sudden, generally unexpected occurrence demanding immediate action. Emergencies at the project site include accidents, injuries requiring medical care, fires, explosions, spills and significant releases of hazardous substances into the environment, and extreme weather events. Upon mobilization to the project, the SS shall provide a means for effective emergency communications (landline telephone, cellular phone, satellite phone, or two-way radio) prior to commencing site activities.

In the event that an emergency arises, the appropriate immediate response must be taken by the first person to recognize the situation. The field crew shall immediately notify the site management of the incident, and the appropriate emergency service organization shall be contacted. A list of emergency contacts is provided in **Table 9-2**. A copy of the emergency telephone numbers and directions to the nearest selected urgent care facility – emergency medical services (EMS) shall transport injured personnel to the hospital – shall be posted at the project site.

The PM, HSM, and the client shall be notified of any accident, injury, or illness.

In the case of injury or illness, a trained person will render the proper emergency first-aid care. First-aid equipment shall be available at the area of fieldwork. Personnel will be notified as to the locations of first-aid equipment during the initial safety briefing session.

If the injury or illness is from exposure to a hazardous substance, rapid identification of that substance should be attempted. This information shall be provided to the medical personnel. The MSDS details first-aid procedures to follow in the event an exposure occurs.

Unless the emergency event is extreme and obvious, the decision to cease all field activities and evacuate the site shall be made by the SS. Field personnel will report to the pre-designated area, if possible. Base authorities (*i.e.*, police, fire department, and civil defense) will decide if the emergency requires evacuation of the surrounding community. Responsibility for community evacuations will be with the base authority in charge of the emergency.

### **9.2.1 Personnel Roles/Lines of Authority**

The roles and responsibilities of Shaw's personnel for response to emergencies at the project site will be clearly defined and coordinated with Shaw, subcontractors, the client, and emergency service personnel. The responsibilities of specific project individuals and the coordination of emergency service personnel are defined in the following subsections.

### **9.2.2 Site Superintendent**

At all times during scheduled work activities, a SS, or designee, will be present on site. This individual will be responsible for implementing these procedures and determining appropriate response actions. Specific responsibilities for the SS include the following:

- Evaluating and assessing emergency incidents or situations.
- Assigning personnel and coordinating response activities on site.
- Informing field personnel of the potential hazards associated with the site.
- Summoning emergency response personnel.
- Notifying the PM and HSM of an emergency situation.
- Verifying that all emergency equipment is routinely inspected and functional.
- Working with the SHSS regarding the correction of any work practices or conditions that may result in injury to personnel or exposure to hazardous substances.
- Informing the appropriate emergency response agencies of the provisions made herein.
- Evaluating the safety of site personnel in the event of an emergency and providing evacuation coordination if necessary.

The SS will direct all emergency response activities conducted or managed by Shaw and is ultimately responsible for field implementation and enforcement of the APP.

### **9.2.3 Site Safety and Health Officer**

The SSHO is responsible for assisting the SS in implementing, communicating, and enforcing safety and health policies and procedures during the course of the project. The SSHO will also assist in evaluating safety and health concerns with respect to environmental releases and emergency response actions.

### **9.2.4 Project Manager**

The PM will provide support to emergency responders and dedicate appropriate project resources to the response effort. If required, the PM will mobilize additional personnel and equipment to the site. The PM will notify and provide the client with recommendations concerning any additional action(s) to be taken.

### **9.2.5 List of Emergency Contacts and Notification**

The base fire department shall be contacted prior to initiating any new activities. They shall be frequently advised and notified about upcoming site activities and potential emergencies. This shall be done to ascertain response capabilities and to obtain a response commitment.

The PM, HSM, and SS will be notified immediately in the event of an emergency. The SS will immediately evaluate the incident and, if necessary, notify emergency response personnel. If not previously notified, the client will be advised of the situation. Telephone numbers for emergency contact personnel are listed in **Table 9-1**. The list will be maintained with current contacts and telephone numbers, and shall be posted at all Shaw-controlled telephones.

The information provided to the emergency contact should include the nature of the incident and the exact location. Specifically, the information should include the following:

- Name and telephone number of the individual reporting the incident,
- Location and type of incident,
- Nature of the incident (*i.e.*, fire, explosion, spill, or release) and substances involved (if any),
- Number and nature of medical injuries,
- Potential for additional risks or dangers,
- Potential off-site risks or dangers,
- Movement or direction of spill/vapor/smoke,
- Response actions currently in progress,
- Estimate of quantity of any released materials,
- Status of incident, and
- Other pertinent information.

### **9.2.6 Medical Emergency Response**

Minor injuries will be treated on site by qualified first aid/CPR providers. Injuries and illnesses that do not require immediate medical care will also be treated at the hospital as shown on **Table 9-1**. The EMS shall be summoned in the event of moderate to severe physical injury, which requires immediate emergency care. In all cases, the SS shall accompany the injured worker to the hospital.

### **9.2.7 Personal Exposure or Injury**

The following procedures will be implemented in the event of a personal injury (other than first aid only).

#### **9.2.7.1 Serious Exposures or Injuries Requiring Transport by Ambulance**

The SS will provide support to emergency responders and dedicate appropriate project resources to the response effort. If required, the PM will mobilize additional personnel and equipment to the project site.

Upon the realization that an individual(s) needs medical care with transport by ambulance, the following procedure will be used when applicable:

- Administer first aid and contact the SS to arrange for dispatch of the EMS.
- When the situation has been stabilized, decontaminate the injured person (if necessary). Do not perform decontamination if it interferes with emergency treatment, such as in a life-threatening situation.
- Notify the Project HSM.
- Move the person to a support area if there is no risk of further injury.
- Assign an individual to meet the EMS at the project site entrance to minimize time in locating the injured worker(s).
- Wait for emergency care, document the event, and maintain communication with the SS.

The SS shall determine where the injured person is being transported and will then go to that medical facility. Universal precautions shall be exercised by all personnel who are rendering first aid care or assisting injured or ill persons. If bodily fluids are need to be clean-up, then the Blood-borne Pathogens Exposure Control Plan (**Section 12** of the SSHP – Attachment 1) shall be implemented.

In the event of a chemical exposure, the following procedures shall be followed after summoning the EMS:

- Skin Contact:
  - Flush with water
  - Remove clothing, flush skin
  - Obtain prompt medical attention, as necessary.
  
- Inhalation:
  - Remove the person from the area
  - Administer first aid/CPR, as needed
  - Obtain immediate medical attention.
  
- Ingestion:
  - Contact the Poison Control Center for immediate treatment, then obtain immediate medical attention
  - Inducing vomiting may cause further injury to the victim; follow instructions from the MSDS and/or Poison Control Center.
  
- Eye Contact:
  - Flush eyes immediately with water for a minimum of 15 minutes
  - Obtain immediate medical attention.

#### **9.2.8 Spill Prevention and Control**

This spill prevention and control section sets forth the procedures for the coordination of and response to potential spills/discharges of hazardous materials or wastes.

##### **9.2.8.1 Pre-emptive Measures**

The following measures shall be taken to minimize the possibility of spills/discharges:

- Site controls are to be maintained so that only authorized personnel have access to work areas.

- Site personnel will be advised of appropriate spill/discharge control measures.
- Appropriate secondary containment structures will be used for storage of hazardous materials and wastes on site.
- Storage containment shall be examined daily.

#### 9.2.8.2 Spill Response

If a hazardous material or waste release is observed at the site, the SS will be immediately notified. An assessment will be made of the magnitude and potential impact of the release. If it is safe to do so, site personnel will attempt to locate the source of the release, prevent further release, and contain the spilled and/or affected materials as follows:

- The spill or release area will be approached from upwind.
- Hazards will be identified based on available information from witnesses or material identification documents (*i.e.*, placards, MSDSs, and logbooks). The potential hazards will be evaluated to determine the proper personal protection levels, methods, and equipment necessary for response.
- If necessary, the release area will be evacuated, isolated, and secured.
- Work zones shall be set up.
- If possible, spill containment will initially be made without entering the immediate hazard area.
- Entry to the release area will be made by personnel with the PPE, training, methods, and equipment necessary to perform the work. Hazardous spill containment and collection will be performed as follows:
  - Contain the spill with absorbent socks, booms, granules, or construction of temporary dikes.
  - Control the spill at the source by plugging leaks, up righting containers, over packing containers, or transferring contents of a leaking container.
  - Collect the spilled material with shovels, pumps, or heavy equipment as necessary.
- Store the spilled material for treatment or disposal. Treatment and/or disposal options of the material will depend on the amount and type of material.

If site personnel cannot safely respond to an environmental release, evacuation of the area may be warranted. The base fire department shall be notified in the event of a significant spill. Upon



their arrival at the site, the SS will brief emergency responders of the status and any potential hazards.

#### 9.2.8.3 Site Evacuation Procedures

In the event that site evacuation is required, a continuous, uninterrupted air horn shall be sounded. Air horns will be located near each active work area where there is potential for an evacuation to become necessary. Hazards of Electromagnetic Radiation to Ordnance (HERO) certified radio or cellular telephone communication may also be used to alert site workers and provide special instructions.

Personnel shall evacuate to a designated safe, upwind location and perform a "head count." The SS is to remain in frequent contact for proper execution of the evacuation procedures.

Situations requiring evacuation may include unusually severe weather conditions, fires, or significant chemical spills or releases. In the event of project evacuation, other than weather-related events, the local fire department will be notified immediately. A site emergency map that delineates evacuation routes, emergency air horn locations, first aid kit locations, rally point(s), and exclusion zone perimeters (if any) will be prepared once the SS has physically evaluated the site. Exact locations of emergency equipment may be modified by the SS. In the event that changes are made, the site emergency map will be updated by the SS in the field and project personnel will be notified.

#### 9.2.8.4 Emergency Equipment

At a minimum, the following emergency equipment shall be maintained at the project site:

- Fire extinguishers,
- First-aid kits,
- Blood-borne pathogen control supplies or kit,
- Emergency eyewash,
- Communication devices.

This equipment is to be inspected by the SS on a weekly basis to verify that they are in good condition, ready to use, and easily accessible. Note: a seal may be maintained on first-aid kits to indicate if the kit has been accessed within the preceding week. The weekly inspection of the first aid kit will only be necessary if the seal has been broken.

#### 9.2.8.5 Critique and Follow-up of Emergency Procedures

The client shall be verbally notified immediately and receive a written notification within 24 hours of all accidents or incidents including releases of toxic chemicals, fires, or explosions. The report shall include the following items:

- Name, organization, telephone number, and location of Shaw.
- Name and title of the person(s) reporting.
- Date and time of accident/incident.
- Location of accident/incident (*i.e.*, site location and facility name).
- Brief summary of accident/incident including pertinent details, such as type of operation ongoing at time of accident.
- Cause of accident/incident, if known.
- Casualties (*i.e.*, fatalities and disabling injuries).
- Details of any existing chemical hazard or contamination.
- Estimated property damage, if applicable.
- Nature of damage and effect on contract schedule.
- Action taken by Shaw to maximize safety and security.
- Other damage or injuries sustained (public or private).

The SS and Project HSM will investigate the cause of the incident to prevent its reoccurrence. The investigation should begin as soon as practical after the incident is under control but not later than the first workday after the incident. Investigations will follow the procedures described below:

- Interview witnesses and participants as soon as possible or practical.
- Determine the chronological sequence of events (opinions as to cause should not be solicited at this time).
- Note any movement, sounds, noises, or other sensory perceptions experienced by the participants or witnesses.
- Obtain weather data.

- Ascertain the location and position of all switches, controls, *etc.*
- Verify the condition of all safeguards.
- Determine if a revision to emergency procedures is warranted.

After the facts have been collected, causal factors should be identified and controlled/eliminated.

#### **9.2.9 Fire Control**

A 2-A:10-B:C fire extinguisher will be kept at each active work area, at a minimum. A 5-B:C fire extinguisher shall be mounted on all heavy equipment. In the event of a fire or explosion at the site, the following actions shall be implemented:

- Evacuate all personnel to a safe location upwind or crosswind of the incident. Contact the SS.
- Concurrently with the above, contact the base fire department as appropriate.
- If personnel who have had training in the use of fire extinguishers are present, use available fire extinguishers to extinguish small fires if the fire can be safely extinguished.
- Alert the local hospital about the possibility of fire victims, as appropriate.
- Document the incident in the field logbook and follow the procedures for incident reporting in **Section 8.0**, "Accident Reporting."

#### **9.2.10 Posting of Emergency Telephone Numbers**

Table 9-1 provides the emergency contact information and will be posted onsite.

#### **9.2.11 Man Overboard/Abandon Ship**

A man overboard/abandon ship plan not required based on the current scope of work (SOW).

#### **9.2.12 Medical Support**

The Contractor will use the services of an Occupational Medicine physician for the medical surveillance requirements. Dr. William Nassetta reviews all of the Contractor's medical examinations and is available for medical consultation on an "as-needed" basis.

**Dr. William Nassetta, MD, MPH**  
**CORE Health Services**  
**12091 Bricksome Avenue, Suite B**

**Baton Rouge, Louisiana, 70816**  
**1-877-EHS SHAW (1-877-347-7429)**  
**225-614-9561 (office) 225-295-4846 (fax)**

Subcontractors should also use the services of an Occupational Medicine physician of their choice to meet any special medical surveillance requirements.

#### 9.2.12.1 On-Site Medical Support

The following addresses first aid and medical facilities:

- Effective emergency communication devices must always be available while personnel are present at the site.
- Employees working alone in a remote location or away from other workers will be provided an effective means of emergency communications (*i.e.*, cellular phone, two-way radios, hard-line telephones, or other acceptable means). The selected communication must be readily available (easily within the immediate reach) of the employee and must be tested prior to the start of work to verify that it effectively operates in the area/environment. An employee check-in/check-out communication procedure will be developed to assure employee safety.
- Emergency telephone numbers will be posted at all Shaw-controlled telephones.
- An appropriate size first-aid kit will be provided and maintained at the project. The first-aid kit will be inspected weekly by the SS. A seal may be placed on first-aid kits to allow for less frequent inspections (*i.e.*, if the seal is not broken, then an inspection is not required). There will be a small first-aid kit available in all project vehicles. First-aid kits located in project vehicles do not need to be inspected if the factory plastic wrapping is intact. First-aid kits will be inspected using the First-Aid Kit Inspection Log (Appendix E of the SSHP).
- The SS will determine the local clinic for emergency and non-emergency medical services at the time of project mobilization. Before commencement of any work at the project sites, the SS will post a map with a route from each project site to the local medical clinic.

At a minimum, two on-site employees will be certified in CPR and first aid during site activities. First-aid and CPR training/certification must be performed by a reputable provider, such as the American Red Cross or American Heart Association.

#### 9.2.12.2 Off-Site Medical Support

In the case of medical emergency or non-emergency work-related injuries, the nearest hospital is Mary Immaculate Hospital. A list of emergency contacts and the clinic information is provided

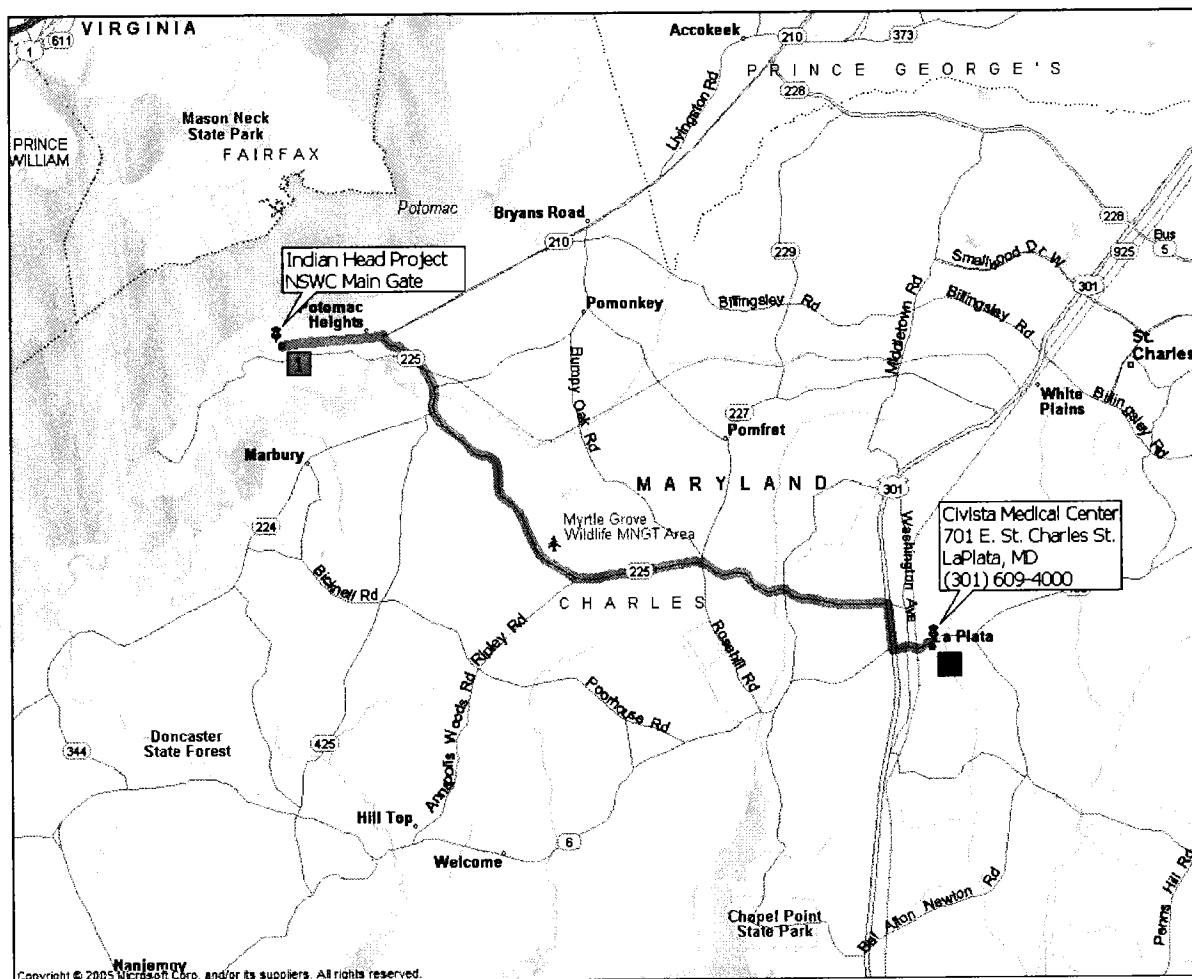
in Table 9-2, "Emergency Information." Figure 9-2A shows the hospital route map. Figure 9-2B shows the CORE Health Services Clinic route map.

**TABLE 9-2                      EMERGENCY INFORMATION**

CONTACT	TELEPHONE
<b>Local Agencies</b> Base Fire Protection Division Ambulance Fire Security Dispatch LEPC	 (301) 744-4333 (301) 744-4333 (301) 744-4333 (301) 744-4333 (301) 744-4381 Will be notified by Fire/Dispatch
<u>Hospital</u> Civista Medical Center 701 E. St. Charles Street LaPlata, MD  <u>Core Clinic</u> Convenient Health Care 12090 Old Line Center Waldorf, MD 20602	 (301) 609-4000      (301) 645-8550
See Figure s9.2A and 9.2B for directions to the hospital and clinic.	
National Capital Poison Center	(800) 222-1222
<b>Federal Agencies</b> Center for Disease Control National Response Center	 (404) 639-3311 (800) 424-8802
Department of the Navy, Atlantic Division (LANTDIV) Facilities Engineering Acquisition Division – Cathy Gardner Contracting Officer Technical Representative – William Lindsay	 (301) 744-2181 (301) 744-2182
<b>Shaw Personnel</b> Project Manager – Steve Carriere Site Superintendent - Brian Harris Site Safety Officer – Michael Hart Program Health and Safety Manager- Jim Joice Program CIH – Dave Mummert Shaw E & I (24 hour)	 (609) 234-6361 (cellular) (757) 846-4423 (cellular) (757) 613-1754 (cellular) (419) 424-4960 (office) (419) 425-6129 (office) (866) 299-3445

**Figure 9-2A Hospital Route Map**

**Route to Hospital:**  
**Civista Medical Center 701 E. St. Charles Street, LaPlata, MD**  
**(301) 609-4000**



Mile	Instruction
0.0	Depart Indian Head on SR-210 [Indian Head Hwy] (East)
1.6	Turn RIGHT (South) onto SR-225 [Hawthorne Rd]
2.8	Bear RIGHT (South) onto SR-224 [SR-225]
3.2	Bear LEFT (South-East) onto SR-225 [Hawthorne Rd]
11.8	Keep STRAIGHT onto SR-225 [W Hawthorne Rd]
12.2	Turn RIGHT (South) onto US-301 [Blue Star Memorial Hwy]
12.9	Turn LEFT (East) onto SR-6
12.9	Keep STRAIGHT onto SR-6 [Charles St]
13.5	Turn RIGHT (South) onto Garrett Ave
13.6	Arrive La Plata

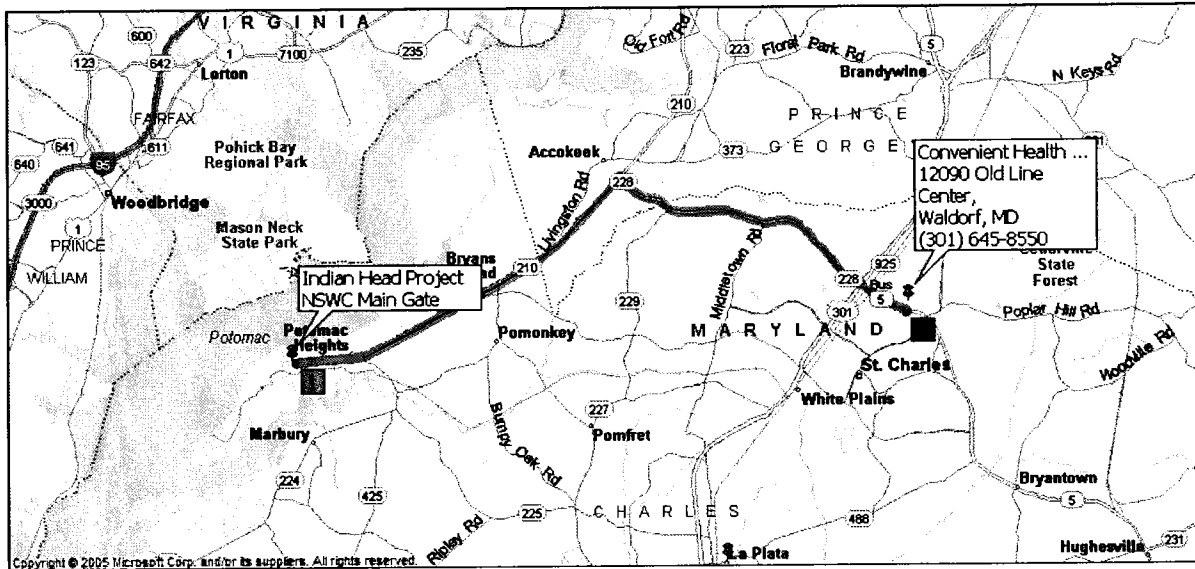
For
1.6 mi
1.2 mi
0.4 mi
8.6 mi
0.4 mi
0.7 mi
21 yds
0.6 mi
131 yds

### **SUMMARY**

Driving distance: 13.6 miles  
Trip duration: 21 minutes Driving time: 21 minutes

**Figure 9-2B Core Health Services Clinic Map**

**Route to Core Clinic  
Convenient Health Care  
12090 Old Line Center  
Waldorf, MD 20602  
(301) 843-3888**



Mile	Instruction	For
0.0	Depart Indian Head on SR-210 [Indian Head Hwy] (East)	9.3 mi
9.3	Keep RIGHT onto Local road(s)	153 yds
9.4	Keep STRAIGHT onto SR-228 [Berry Rd]	6.7 mi
16.1	Bear RIGHT (South-East) onto SR-5 Bus	1.3 mi
17.4	Turn RIGHT (South) onto Old Line Center	98 yds
17.5	Arrive 12090 Old Line Center, Waldorf, MD 20602	

### **SUMMARY**

Driving distance: 17.5 miles  
Trip duration: 24 minutes  
Driving time: 24 minutes

### 9.3 ALCOHOL AND DRUG ABUSE PLAN

Shaw is firmly committed to providing employees a safe and healthful workplace, and to providing clients and the public safe and efficient services. Employee involvement with the use, possession, or sale of alcohol, illegal drugs, or any substance represented as a controlled substance creates an impediment toward meeting these commitments and is prohibited.

At no time while on duty may employees use or be under the influence of alcohol, narcotics, intoxicants, or similar mind-altering substances. Employees found under the influence of or consuming such substances will be immediately removed from the job site, as specified in the Section 01.C.02 of EM-385 (USACE, 2008).

All employees of Shaw and its subcontractors are subject to drug and alcohol testing as described in Shaw Procedure No. HS101, *"Drug and Alcohol Testing"* (2010). Post accident drug and alcohol testing is a requirement of Shaw when not prohibited by State or Local law.

### 9.4 SITE SANITATION PLAN

The following provisions shall be made to address sanitation:

- Portable toilets shall be provided, as necessary, at convenient locations at the project. Arrangements shall be made for the routine servicing and cleaning of these units.
- Under temporary field conditions, provisions shall be made to assure that at least one toilet facility is available.
- Toilets shall be provided in accordance with Table 2-1, Section 02.E.01, EM 385-1-1 (USACE, 2008). When toilet rooms may be occupied by no more than one person at a time, can be locked from the inside, and contain at least one toilet seat, separate toilet rooms for each sex need not be provided.
- Safe drinking water is to be provided at each project and provisions shall be made as necessary to provide safe drinking water at individual field locations. One-serving size individual bottle of water or disposable sanitary cups shall be provided along with receptacles for their disposal. All outlets dispensing non-potable water (under Shaw control) shall be posted with appropriate warning signs. Systems furnishing non-potable water and systems furnishing potable water shall be constructed to remain completely independent of each other.
- Portable washing facilities shall be provided as necessary at project sites. Portable washing facilities shall consist of, at a minimum, soap, water, and paper towels. When it is not feasible to use soap and water, such as during freezing weather, Handi-wipes or equivalent shall be made available.



## 9.5 ACCESS AND HAUL ROAD PLAN

An access and haul road plan is not required based on the current SOW. Current access roads shall be used.

## 9.6 RESPIRATORY PROTECTION PLAN

The primary objective of respiratory protection is to prevent employee exposure to atmospheric contamination. When engineering measures to control contamination and respirable hazards are not feasible, or while they are being implemented, personal respiratory protective devices will be used. Shaw's respiratory protection requirements are specified in Shaw Procedure No. HS601, "*Respiratory Protection Program*" (2010).

The criteria for determining respirator need have been evaluated based on the site contaminants. Air monitoring will be conducted to confirm that respiratory protection levels are adequate. All respirator users will be OSHA trained in proper respirator use and maintenance. The SSHO will observe workers during respirator use for signs of stress. The SSHO, HSM, and CIH will also evaluate the implementation of the SSHP, periodically, to determine its continued effectiveness with regard to respiratory protection. All persons assigned to use respirators will have medical clearance to do so.

## 9.7 HEALTH HAZARD CONTROL PLAN

The AHAs presented in **Appendix B** of the SSHP (Attachment 2) address the hazards for proposed site activities. The AHAs will serve as the initial certification of hazard assessment. An AHA is an ongoing process from initiation of the SSHP to implementation and completion of fieldwork.

## 9.8 HAZARD COMMUNICATION PROGRAM

MSDSs for chemicals that may be required during site operations will be available on site, and will be updated by the SSHO as new chemicals are procured. Shaw Procedure No. HS060, "Hazard Communication Program" (2010), will be implemented on site if necessary; however, hazardous materials are not anticipated to be brought on site during the execution of this SOW. Employee records will be maintained on site by the HSM. Employee records are also available through the Shaw Records Training Department via secure intranet access.

## 9.9 PROCESS SAFETY MANAGEMENT PLAN

A process safety management plan is not required based on the current SOW.

#### 9.10 LEAD ABATEMENT PLAN

A lead abatement plan is not required based on the current SOW.

#### 9.11 ASBESTOS ABATEMENT PLAN

An asbestos abatement plan is not required based on the current SOW

#### 9.12 RADIATION PROTECTION PROGRAM

A radiation protection program is not required based on the current SOW.

#### 9.13 ABRASIVE BLASTING PLAN

An abrasive blasting plan is not required based on the current SOW.

#### 9.14 HEAT / COLD STRESS MONITORING PLANS

##### **9.14.1 Heat Stress**

Heat stress is of concern for worker safety during the summer months or when working in areas containing steam lines or other heat-generating equipment. Heat stress is caused by a number of interacting factors, including environmental conditions, clothing, PPE, workload, and individual characteristics. Heat stress can cause physical discomfort, loss of efficiency, or personal illness/injury. Shaw's heat stress program is specified in Shaw Procedure No. HS400, "*Heat Stress*" (Shaw, 2010).

Individuals vary in their susceptibility to heat stress. Factors that may predispose individuals to heat stress include the following:

- Lack of physical fitness and/or obesity,
- Insufficient acclimation,
- Age,
- Dehydration,
- Alcohol and/or drug use,
- Infection,
- Sunburn,
- Diarrhea,

- Chronic disease,
- Medical conditions and/or the use of some medications, such as beta-blockers for high blood pressure.

The amount and type of PPE worn directly influences reduced work tolerance and the increased risk of heat stress. PPE adds weight and bulk reduces the body's capability for physiological thermoregulation (*i.e.*, evaporation, convection, and radiation), and increases energy expenditure.

#### 9.14.1.1 Signs and Symptoms of Heat Stress

If the body's physiological processes fail to maintain a normal body temperature because of excessive heat, a number of physical reactions can occur – ranging from mild to fatal.

These physical reactions to excessive heat include the following:

- Heat rash is caused by continuous exposure to heat and humidity, and is aggravated by chafing clothes. Heat rash decreases the body's ability to tolerate heat in addition to being a nuisance.
- Heat cramps are caused by profuse perspiration with inadequate electrolytic fluid replacement. Heat cramps cause painful muscle spasms and pain in the extremities and abdomen.
- Heat exhaustion is caused by increased stress on various organs to meet increased demand to cool the body. Heat exhaustion causes shallow breathing; pale, cool, moist skin; profuse sweating; and dizziness.
- Heat stroke is the most severe form of heat stress. Heat stroke symptoms include hot, dry skin; no perspiration; nausea; dizziness; confusion; strong, rapid pulse; coma; and sometimes death. Heat stroke is a serious medical emergency. The affected person shall be cooled down rapidly, and medical attention must be given immediately (Section 9.14.1.4, "Heat Stroke Treatment").

The American Conference of Governmental Industrial Hygienist (ACGIH) (2010) states that excessive heat stress may be marked by one or more of the following symptoms, and an individual's exposure to heat stress should be discontinued when any of the following occur:

- Sustained (several minutes) heart rate is in excess of 180 beats per minute minus the individual's age in years (180 minus age) for individuals with assessed normal cardiac performance.

- Body core temperature is greater than 101.3 degrees Fahrenheit (°F) for medically selected and acclimatized personnel; or greater than 100.4°F in unselected, unacclimatized workers.
- Recovery heart rate at 1 minute after a peak work effort is greater than 110 beats per minute.
- There are symptoms of sudden and severe fatigue, nausea, dizziness, or lightheadedness.

An individual may be at greater risk of heat stress if the following occurs:

- Profuse sweating is sustained over hours.
- Weight loss over a shift is greater than 1.5 percent of body weight
- 24-hour urinary sodium excretion is less than 50 millimoles (ACGIH, 2010).

#### 9.14.1.2 Heat Stress Prevention

The following practices will help prevent heat stress:

- Acclimatize workers to hot working conditions.
- Provide plenty of liquids to replace the body fluids lost by perspiration. Fluid intake should be forced because under conditions of heat stress, the normal thirst mechanism is not adequate to bring about a voluntary replacement of lost fluids.
- Provide personal cooling devices.
- Conduct strenuous field operations in the early morning and provide shade when possible.
- Train personnel to recognize the signs and symptoms of heat stress, its prevention, and treatment.
- Rotate personnel to various job duties and establish adequate work/rest cycles.
- Provide shade or shelter during rest periods.

#### 9.14.1.3 Heat Stress Treatment

Workers expressing the symptoms of heat stress shall notify the SS immediately. At the onset of heat-related illness, activities must be halted and treatment initiated. Early detection and treatment of heat stress helps to prevent further serious illness or injury. Individuals that have

experienced heat-related illness could become more sensitive and predisposed to additional future heat stress-related problems.

Heat exhaustion can be alleviated by having the affected person rest in a cool, shaded location and have them drink cool water. To cool down the affected person's body, perform the following:

- Remove impermeable PPE.
- Remove worker from direct sunshine.
- Apply copious amounts of cool (not cold) water on them.
- Encourage them to drink cool water, not cold, if conscious.

#### 9.14.1.4 Heat Stroke Treatment

Heat stroke is a true medical emergency. In a heat stroke situation, the body must be cooled immediately to prevent severe injury or death – medical attention must be immediately obtained. The following shall be performed if heat stroke is suspected:

- Transportation of the victim to a medical facility must not be delayed – seek immediate medical attention.
- Apply cold packs, if available; place under the arms, around the neck, or any other place where they can cool large surface blood vessels.
- If transportation to a medical facility is delayed, reduce body temperature by immersing victim in a cool water bath (however, be careful not to over-chill the victim once body temperature is reduced below 102°F). If this is not possible, continuously douse victim with cool water and fan for evaporative cooling.

#### 9.14.1.5 Acclimatization

Physiologically adjusting or acclimatizing personnel to hot conditions is extremely important. Supervisors shall provide the necessary time for adequate worker acclimatization due to each individual's physical condition and his or her ability to work in hot and humid environments.

#### 9.14.1.6 Physiological Monitoring

Adequate work/rest periods shall be implemented as necessary to prevent heat stress on personnel. However, since individuals vary in their susceptibility to heat stress, the Contractor will also use physiological monitoring to aid in measuring each individual's response to heat stress. The initiation of physiological monitoring will be required when employees are working

in environments exceeding 90°F ambient air temperatures. Physiological monitoring is also required when ambient temperatures exceed 70°F and impermeable garments are worn. Ambient air temperatures shall be recorded on the Ambient Air Temperature Log (Appendix E of the SSHP) when ambient temperatures exceed 70°F. The two physiological parameters that each individual will monitor are as follows:

- Heart Rate – Each individual will count his/her radial (wrist) pulse as early as possible during each rest period. If the heart rate of any individual exceeds 75 percent of their calculated maximum heart rate (maximum heart rate equals 200 minus age) at the beginning of the rest period, then the work cycle will be decreased by one-third. The rest period will remain the same. An individual is not permitted to return to work until his/her sustained heart rate is below 75 percent of their calculated maximum heart rate.
- Body Temperature – Each individual will measure his/her body temperature with an intra-aural (ear) thermometer, as directed by the thermometer manufacturer's instructions, as early as possible in the first rest period. If the temperature exceeds 99.6°F at the beginning of the rest period, then the work cycle shall be decreased by one-third. The rest period will remain the same.

An individual is not permitted to return to work if his/her temperature exceeds 100.4°F. Physiological monitoring data will be recorded on the Employee Physiological Monitoring Record for Heat Stress (Appendix E of the SSHP).

#### 9.14.1.7 Training

Personnel who may be exposed to hot working environments shall be trained in the following topics:

- Employees:
  - Sources of heat stress, influence of protective clothing, and importance of acclimatization.
  - How the body handles heat.
  - Heat-related illnesses and their recognition (signs and symptoms).
  - Preventive/corrective measures.
  - Individual factors, such as age, weight, gender, level of acclimatization, *etc.*, that may predispose some workers to heat stress.
  - Medical conditions and use of prescription drugs, such as beta blockers, that may modify a worker's ability to adapt physiologically to heat stress.

- Physiological monitoring, record keeping of oral temperature/pulse, and establishment of work-rest regimes.
- First-aid procedures.
- Supervisors:
  - Physiological monitoring, record keeping of oral temperature/pulse, and establishment of work-rest regimes.
  - First-aid procedures.

### 9.14.2 Cold Stress

As with high temperatures, outdoor work in low temperatures can result in risks to the health of employees exposed without adequate preparation. The combined temperature/wind chill affect is shown in Table 9-2, "Wind Chill." To minimize impacts from cold stress, the information and precautions given below shall be observed. If cooler conditions than expected are encountered (e.g., 45°F) during work hours, the requirements established in Shaw Procedure HS 401, "Cold Stress" (Shaw, 2010) will be followed.

*TABLE 9-14A WIND CHILL*

COOLING POWER OF WIND ON EXPOSED FLESH EXPRESSED AS EQUIVALENT TEMPERATURE												
		Actual Temperature Reading (°F)										
Estimated	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
Wind Speed (in mph)	Equivalent Chill Temperature (°F)											
Calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-24	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-32	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-121
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-51	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
(Wind speeds greater than 40 mph have little additional effect)	LITTLE DANGER In<hr with dry skin. Maximum danger of false sense of security.				INCREASING DANGER Danger from freezing of Exposed flesh within One minute.				GREAT DANGER Flesh may freeze within 30 seconds.			
Trench foot and immersion foot may occur at any point on this chart.												

Cold-related worker fatalities have resulted from failure to escape low environmental air temperatures, or from immersion in low temperature water. Most hypothermia cases develop in air temperatures between 30 and 50°F. The single most important aspect of life-threatening hypothermia is a fall in the deep core temperature of the body. Lower body temperature will

very likely result in reduced mental alertness, reduction in rational decision making, or loss of consciousness with the threat of fatal consequences.

Persons working outdoors in temperatures at or below freezing may be frostbitten. Extreme cold for a short time may cause severe injury to the surface of the body, or result in profound generalized cooling, causing death. Areas of the body that have high surface-area-to-volume ratio such as fingers, toes, and ears are the most susceptible.

Local injury resulting from cold is included in the generic term frostbite. There are several degrees of damage. Frostbite of the extremities can be categorized into:

- Frost Nip or Initial Frostbite: Characterized by sudden blanching or whitening of skin.
- Superficial Frostbite: Skin has a waxy or white appearance and is firm to the touch, but tissue beneath is resilient.
- Deep Frostbite: Tissues are cold, pale, and solid; extremely serious injury.
- Systemic Hypothermia: This condition is caused by exposure to freezing or rapidly dropping temperature. Its symptoms are usually exhibited in five stages: 1) shivering; 2) apathy, listlessness, sleepiness, and sometimes rapid cooling of the body to less than 95°F; 3) unconsciousness, glassy stare, slow pulse, and slow respiratory rate; 4) freezing of the extremities; and finally 5) death.

Treatment of cold stress includes bringing the body core temperature back to its normal temperature of 98.6°F. Personnel exhibiting symptoms of cold stress should be brought in to a warm area and allowed to rest and warm up. Warm, non-alcoholic, decaffeinated drinks (not coffee) or soup should be given to increase body temperature, and re-warming should be gradual.

For frostbite emergency treatment, the victim should be sheltered from the wind and cold and given warm drinks. If superficial, the frozen area should be covered with extra clothing or warmed against the body. Do not use direct heat and do not pour hot water over or rub the affected area. Warming should be gentle and gradual. If the frostbite is deep (area is frozen and hard to the touch), immediate medical attention should be obtained.

For hypothermia emergency treatment, all stages are treated by either passive or active re-warming. This is accomplished by better conservation of the patient's body heat. It is important to note that if a victim is found in a remote area, despite the death-like appearance, the person may be saved. All attempts should be made to revive the victim. Active re-warming means heat



is applied to the victim by an external source, either to the skin surface and/or through the core.  
Treatment includes:

- Preventing further heat loss. Remove the victim to a warm, dry place.
- Remove wet clothing piece-by-piece and dry underlying skin.
- Dress in several layers of warm, dry clothing, giving preference to the central body core rather than the extremities.
- Cover the victims head, then wrap the victim in blankets.
- If the victim is conscious, help him/her to drink hot fluids.
- Monitor oral body temperature every 15 minutes. If the body temperature falls below 98.6°F, the team member should not be allowed outside until the body temperature returns to normal.
- In more severe cases of hypothermia, implement the above actions, but also institute some type of active re-warming, including:
  - Electric pads or blankets,
  - Hot-air blowers or heaters,
  - Heated blankets or clothes,
  - Use of human body heat.
- It is important to watch for signs of return of the normal thermoregulatory mechanisms (shivering, teeth chattering, etc.) and to monitor mental status.
- The victim should be transferred to a medical facility after the emergency care steps have been initiated and should not be allowed to return to work for at least 48 hours.
- Perform CPR if the victim does not exhibit a pulse or not breathing.
- Avoidance of cold stress emergencies can be performed by the general practices state below:
  - Wear layered clothing, including a water-repellent outer layer.
  - Wear gloves, socks, and a hat that are synthetic or wool insulated.
  - Remove outer layers of clothing during breaks to prevent inner layer from getting wet from perspiration.
  - Eat well balance meals and maintain an adequate intake of fluids.

- Seek shelter in a warm protected area when signs and symptoms of cold stress become evident.

**Table 9-3**, “Threshold Limit Values Work/Warm-Up Schedule for 4-Hour Shift,” provides a work/warm-up schedule for a 4-hour shift as it relates to temperature and wind speed. This schedule will be applied during all field work.

**TABLE 9-14B THRESHOLD LIMIT VALUES WORK/WARM-UP SCHEDULE FOR 4-HOUR SHIFT\***

AIR TEMP-(APPROX.) SUNNY SKY		NO WIND		5 MPH WIND		10 MPH WIND		15 MPH WIND		20 MPH WIND	
°C	°F	MAX. WORK PERIOD	NO. OF BREAKS	MAX. WORK PERIOD	NO. OF BREAKS	MAX. WORK PERIOD	NO. OF BREAKS	MAX. WORK PERIOD	NO. OF BREAKS	MAX. WORK PERIOD	NO. OF BREAKS
-26° to -28°	-15° to -19°	Normal	1	Normal	1	75 min.	2	55 min.	3	40 min.	4
-29° to -31°	-20° to -24°	Normal	1	75 min.	2	55 min.	3	40 min.	4	30 min.	5
-32° to -34°	-25° to -29°	75 min.	2	55 min.	3	40 min.	4	30 min.	5	Non-emergency work should cease	
-35° to -37°	-30° to -34°	55 min.	3	40 min.	4	30 min.	5	Non-emergency work should cease			
-38° to -39°	-35° to -39°	40 min.	4	30 min.	5	Non-emergency work should cease					
-40° to -42°	-40° to -44°	30 min.	5	Non-emergency work should cease							
-43° and Below	45° and Below	Non-emergency work should cease	Non-emergency work should cease								

- Schedule applies to any 4-hour work period with moderate to heavy work activity, with warm-up periods of ten (10) minutes in a warm location and with an extended break (e.g., lunch) at the end of the 4-hour work period in a warm location. For Light-to-Moderate Work (limited physical movement): apply the schedule one step lower. For example, at -35°C (-30°F) with no noticeable wind (Step 4), a worker at a job with little physical movement should have a maximum work period of 40 minutes with 4 breaks in a 4-hour period (Step 5).
  - The following is suggested as a guide for estimating wind velocity if accurate information is not available:
    - 5 mph: light flag moves; 10 mph: light flag fully extended; 15 mph: raises newspaper sheet; 20 mph: blowing and drifting snow.
  - If only the wind chill cooling rate is available, a rough rule of thumb for applying it rather than the temperature and wind velocity factors given above would be:
    - Special warm-up breaks should be initiated at a wind chill cooling rate of about 1,750 W/m<sup>2</sup>; 2) all non-emergency work should have ceased at or before a wind chill of 2,250 W/m<sup>2</sup>. In general, the warm-up schedule provided above slightly under-compensates for the wind at the warmer temperatures, assuming acclimatization and clothing appropriate for winter work. On the other hand, the chart slightly over-compensates for the actual temperatures in the colder ranges because windy conditions rarely prevail at extremely low temperatures.
  - Threshold limit values (TLVs) apply only for workers in dry clothing.
- \* Adapted from the "1995-1996 Threshold Limit Values and Biological Exposure Indices," American Conference of Governmental Industrial Hygienist. Cincinnati, OH.

## **9.15 CRYSTALLINE SILICA MONITORING PLAN**

A crystalline silica monitoring plan is not required based on the current SOW.

## **9.16 NIGHT OPERATIONS LIGHTING PLAN**

Night operations are not anticipated for the project. Adequate lighting shall be provided to perform all activities in a safe manner. When work is performed before sunrise, after sunset, inside buildings, or within other structures, the minimum lighting requirements specified in Table 7-1 of EM-385 (USACE, 2008) shall be provided.

## **9.17 FIRE PREVENTION AND PROTECTION PLAN**

This section details fire prevention and protection procedures/resources to be used at the project.

### ***9.17.1 Workplace Fire Hazards***

The primary fire hazards at the project consist of fueling operations, storage of fuels, and other flammable liquids at the project site.

### ***9.17.2 Potential Ignition Sources***

The significant ignition sources at the project include smoking materials, welding/cutting equipment, vehicle/equipment exhaust, catalytic converters, and engine block surfaces. Personnel shall also be alert for other ignition sources such as static electricity, lightning, and electrical equipment.

### ***9.17.3 Fire-Control Systems, Equipment, and Procedures***

Depending on the nature and extent of any fire, the following fire-control systems and equipment shall be evaluated or provided for at the project:

- The base fire department shall be contacted prior to beginning new operations at the project site. The base fire department shall also be contacted at the conclusion of operations.
- Fire extinguishers shall be provided at selected locations in Contractor-controlled facilities and work areas. Project vehicles and heavy equipment shall also be equipped with fire extinguishers.
- Hudson sprayers filled with potable water shall be available when performing work at remote locations where dry grass exists.

- A Contractor Hot Work Permit is required before a flame- or spark-producing activity is to commence. Hot work permits will be performed in accordance with “Shaw Procedure No. HS314, Hot Work in Hazardous Locations” (2010). Hot Work Permits must be obtained from the base fire department. In addition, before any hot work commences on the fuel storage systems, including tanks and ancillary piping, a certified Marine Chemist will provide written guidance on safe hot work procedures.
- Flammable and oxidizing materials shall be stored in marked (No Smoking, Matches, or Open Flame) flammable materials storage areas with fire extinguishers available.
- Smoking shall only be permitted in designated areas. Personnel shall never discard cigarette butts into the environment while working at the project site.
- Project personnel are only permitted to extinguish small fires in their incipient stages.
- Fighting fires is prohibited by project personnel and shall only be performed by the base or local fire department.

#### ***9.17.4 Fire-Control Equipment Maintenance Responsibilities***

The SS is responsible for the monthly inspections and annual service of all fire extinguishers provided at Contractor-provided facilities and work areas. Vehicle and heavy equipment operators are responsible for the inspection and service of fire extinguishers on vehicles/equipment.

### **9.18 WILD LAND FIRE PREVENTION PLAN**

A wild land fire management plan is not required based on the project location and current SOW.

### **9.19 HAZARDOUS ENERGY CONTROL PLAN**

All hazardous energy shall be controlled in accordance with Shaw Procedure No. HS315, “Control of Hazardous Energy Sources” (2010). Applicable regulations include the OSHA standard for electrical power, 29 CFR §1926, Subpart K, and Sections 11 and 12 of EM-385 (USACE, 2008).

Only qualified electricians may work on electrical circuits. Qualified personnel shall be trained with the proper use of the special precautionary techniques, PPE, including arc-flash, insulating and shielding materials, and insulated tools and test equipment.

Live parts to which an employee might be exposed shall be put into an electrically safe work condition (de-energized) before an employee works on or near them, unless it can be demonstrated that de-energizing introduces additional or increased hazards or is infeasible due to

equipment design or operational limitations. This rule applies to all electrical work, including changing a light bulb.

Where work is performed in locations containing un-insulated energized overhead lines that are not guarded or isolated, precautions shall be taken to prevent employees from contacting such lines directly with any unguarded parts of their body or indirectly through conductive materials, tools, or equipment. Refer to **Table 9-4, *Minimum Clearance from Energized Overhead Electric Lines***, when working near overhead power lines. Where the work to be performed is such that contact with un-insulated energized overhead lines is possible, the lines shall be de-energized and visibly grounded at the point of work, or suitably guarded.

Employees working in areas where electrical hazards are present shall be provided with, and shall use, PPE that is designed and constructed for the specific part of the body to be protected and for the work to be performed, as required by Section 130.7 of National Fire Protection Association (NFPA) 70 E, Standard for Electrical Safety in the Workplace (NFPA, 2009).

Employees shall use insulated tools and/or handling equipment when working inside the Limited Approach Boundary of exposed live parts where tools or handling equipment might make accidental contact. Insulated tools shall be protected from damage to the insulating material.

Before starting each electrical job, the qualified employee in charge shall conduct a job briefing with the employees involved. The briefing shall cover such subjects as hazards associated with the job, work procedures involved, special precautions, energy source controls, and PPE requirements.

Only hard or extra-hard usage extension cords shall be used. Extension cords, power tools, and lighting equipment shall be inspected before each use, protected from damage, and kept out of wet areas.

The handling of compressed gas cylinders shall comply with the requirements established in Shaw Procedure No. HS304, "Compressed Gas Cylinders" (2010). All pressure vessels shall be designed, inspected, and tested in accordance with ASTM International standards. All air compressors and hoses shall be inspected before use, operated, and maintained by designated, qualified personnel. All air compressors shall be equipped with a pressure gauge and relief-valve, and only be operated at design pressures. Chicago fittings shall be secured together with tie-wire or equivalent and secured with safety lashings.

Lock-out/tag-out procedures are to be implemented during servicing or maintenance of machines and equipment to preclude the unexpected release of stored energy or inadvertent energizing of

the machines or equipment. These procedures are contained in Shaw Procedure No. HS315, "Control of Hazardous Energy Sources" (2010) and comply with the requirements established in 29 CFR 1926.417.

Subcontractors may implement their own lock-out/tag-out procedure if the SS has approved its use and verifies that it is no less protective than the Shaw Procedure No. HS315.

**TABLE 9-19 MINIMUM CLEARANCE FROM ENERGIZED OVERHEAD ELECTRIC LINES**

NOMINAL SYSTEM VOLTAGE	MINIMUM REQUIRED CLEARANCE
0 to 50 kilovolts	3 meters (10 feet)
51 to 200 kilovolts	4.5 meters (15 feet)
201 to 300 kilovolts	6 meters (20 feet)
301 to 500 kilovolts	7.5 meters (25 feet)
501 to 750 kilovolts	10.5 meters (35 feet)
751 to 1,000 kilovolts	13.5 meters (45 feet)

#### **9.19.1 Portable Generator Use**

Refer to the generator manufacturer's instructions for safe operation. Never use a generator in enclosed or partially enclosed spaces due to the quick build-up of high levels of carbon monoxide. The concentration of carbon monoxide shall be monitored when using generators in areas of poor ventilation. The concentration of carbon monoxide in the work area shall not be allowed to exceed 25 parts per million.

Keep the generator dry and do not use in rain or wet conditions. To protect from moisture, operate it on a dry surface under an open, canopy-like structure. Dry your hands, if wet, before touching the generator. Use a heavy duty, outdoor-rated extension cord that is rated (in watts or amps) at least equal to the sum of the connected appliance loads. Check that the entire cord is free of cuts or tears and that the plug has all three prongs, especially a grounding pin. If recommended by the manufacturer, ground generators by using a hand-inserted ground-rod.

Before refueling the generator, turn it off and let it cool down. Gasoline spilled on hot engine parts could ignite. A 2-A:20-B:C fire extinguisher shall be readily available in locations where a generator is being used.

Use hearing protection when working near a generator.

## 9.20 CRITICAL LIFT PLAN

Critical lift operations will be conducted in accordance with the requirements of Shaw Procedure Nos. HS822 "Crane Operations" and HS823 "Rigging and Lifting" and EM 385 1-1 Section 16.H (USACE, 2008).

Prior to conducting a critical lift, a qualified person will prepare a critical lift plan. Critical lifts will not proceed until all individuals involved in the lift, the SS, SSHO, Navy representative, and engineer (lifts in excess of 25 tons) have reviewed and approved the plan. Approval will be documented as required by Shaw Procedure No. HS823.

## 9.21 CONTINGENCY PLAN FOR SEVERE WEATHER

Personnel should be aware of the possibility for the occurrence of severe weather such as lightning, thunderstorms, heavy rains, or hurricanes. Necessary precautions or response, directed by the SS, will be taken in the event of severe weather. Local weather broadcasts will be monitored by the SS or designee when the likelihood for severe weather exists. Generally, cellular telephone communication will be used to alert crews to threatening weather.

### 9.21.1 *Lightning Safety*

Outdoor activities will be suspended when the potential for lightning occurs. The following measures, offered by the National Lightning Safety Institute of Louisville, Colorado, shall be taken to minimize the possibility of injury to personnel by lightning:

- The SS is responsible for monitoring weather conditions.
- Upon seeing lightning or hearing thunder, outdoor activities shall be suspended and personnel shall be evacuated to safe areas (*i.e.*, inside vehicles or buildings). When clouds with dark bases and wind speeds pick up, anticipate thunderstorms.
- The SS will continue to monitor weather conditions.
- Outdoor activities may resume 30 minutes after the last bolt of lightning was observed and the last clap of thunder was heard.

People who have been struck by lightning do not carry an electrical charge and are safe to handle. Apply first aid immediately if you are qualified to do so. Get emergency help promptly.

#### SAFE AREAS INCLUDE:

- Fully enclosed metal-topped vehicles with windows up.
- Substantial and permanent buildings.



**UNSAFE AREAS INCLUDE:**

- Small structures including huts and rain shelters.
- Nearby metallic objects like fences, gates, instrumentation and electrical equipment, wires, and power poles.

The following shall also be avoided when lightning is in the area:

- Trees,
- Water,
- Open fields, and
- Using hard-wired telephones and headsets.

If hopelessly isolated from shelter during close-in lightning, adopt a low crouching position with feet together (up on toes, if possible) and hands on ears. If hair stands on end or rises on back of neck, a lightning strike is imminent.

Remember the warning phrase from the National Lightning Safety Institute: “If you can see it (lightning), flee it; if you can hear it (thunder), clear it.”

### ***9.21.2 Hurricanes***

In the event of a hurricane approaching the area, implement the measures outlined in the “Hurricane Preparedness Plan”, included as Appendix G of the SSHP( **Attachment 2**).

## **9.22 FLOAT PLAN**

A float plan is not required based on the current SOW.

## **9.23 FALL PROTECTION PLAN**

### ***9.23.1 Purpose***

The purpose of this site-specific Fall Protection Plan is to identify the fall protection requirements during project activities. This plan will be updated to include any additional fall hazards, as part of project activities.

### ***9.23.2 Required Fall Protection/Fall Protection Systems***

**Personal Fall Arrest Systems:** Personnel involved in work in excess of 6 feet from a lower level without the proper guardrail systems may require the use of a personal fall arrest system.

Personal fall arrest systems will consist of full-body harnesses, lanyards with locking snap hooks, and secure anchorage points. Lanyards and anchorage points (fixed objects or 3/8-inch cable lines) will be rated at a minimum of 5,000 pounds. Fall arrest systems will be checked daily for signs of debris, rust, or corrosion. Under no circumstances will personnel on ladders use their ladder as an anchorage point. They will find an anchorage point near the ladder and above their mid body to secure their lanyard.

### **9.23.3 Training Requirements**

Site personnel who might be exposed to fall hazards will receive initial training by a competent person qualified in the safe use of access ways, fall protection systems, and the recognition of hazards associated with their use, including:

- Nature of access and the fall hazards in the work areas.
- Correct procedures for erecting, maintaining, using, disassembling, and inspecting the fall protection systems and access ways.
- Use and operation of fall arrest systems.
- Maximum load-carrying capacities of fall protection systems and access ways.
- Limitations on the use of mechanical equipment.
- Correct procedures for handling and storage of equipment and materials.

#### **9.23.3.1 Training Documentation**

Training shall be documented and maintained at the project site in the form of a written training certification record with the name of the employee trained, date of training, and the signature of the trainer.

#### **9.23.3.2 Re-training**

Re-training will be required whenever site conditions or types of fall protection change.

### **9.23.4 References**

- Title 29, CFR, Part 1926, Subpart M – Sample Fall Protection Plan –Non-Mandatory Guidelines for Complying with 1926.503(k) 1926 Subpart M App E.
- EM-385, Section 21 (USACE, 2008).
- Shaw Procedure No. HS 301, “Fall Protection” (2010).

#### **9.24 DEMOLITION PLAN**

A demolition plan is not required based on the current SOW.

#### **9.25 EXCAVATION / TRENCHING PLAN**

The excavation plan is included in Section 4.3.13 of the SSHP (**Attachment 2**).

#### **9.26 EMERGENCY RESCUE (TUNNELING)**

Tunneling is not anticipated based on the current SOW.

#### **9.27 UNDERGROUND CONSTRUCTION FIRE PREVENTION AND PROTECTION PLAN**

An underground construction fire prevention and protection plan is not required based on the current SOW.

#### **9.28 COMPRESSED AIR PLAN**

A compressed air plan is not required based on the current SOW.

#### **9.29 FORM WORK AND SHORING ERECTION AND REMOVAL PLANS**

Formwork and shoring erection and removal plans are not required based on the current SOW.

#### **9.30 PRECAST CONCRETE PLAN**

A precast concrete plan is not required based on the current SOW.

#### **9.31 LIFT SLAB PLAN**

A lift slab plan is not required based on the current SOW.

#### **9.32 STEEL ERECTION PLAN**

A steel erection plan is not required based on the current SOW.

#### **9.33 SITE SAFETY AND HEALTH PLAN**

The SSHP included as **Attachment 2** of this APP fulfills the requirements for the Site Safety and Health Plan under EM-385 (USACE, 2008).

#### **9.34 BLASTING PLAN**

A blasting safety plan is not required based on the current SOW.

### **9.35 DIVING PLAN**

A diving plan is not required based on the current SOW.

### **9.36 CONFINED SPACE PROGRAM**

A confined space is defined as a space large enough and configured so that an employee can bodily enter and perform assigned work, has limited means for entry or exit, and is not designed for continuous employee occupancy. Confined space work may pose additional hazards such as chemical exposures, flammable/explosive atmospheres, electrocution, oxygen deficiency, *etc.* The Contractor has detailed training for confined space entry: only properly trained personnel shall supervise and participate in confined space entry procedures or serve as standby attendants.

Confined space entry is not required based on the current SOW. In the event the SOW changes, Shaw and subcontractors will perform all confined space entry in accordance with Shaw Procedure No. HS300, "Confined Spaces" (2010).

## ***10.0 CONTRACTOR INFORMATION ASSOCIATED WITH THE MAJOR REQUIREMENTS OF USACE SAFETY AND HEALTH REQUIREMENTS MANUAL, ENGINEERING MANUAL 385-1-1***

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In addition to this APP, Shaw has prepared a SSHP (**Attachment 2**) to meet the major requirements of EM-385 (USACE, 2008). Additional procedures for major requirements are provided in the Shaw Health and Safety Procedures Manual HS001-999 [a list is included in Appendix E of the SSHP (**Attachment 2**); paper and electronic copies to be onsite at all times].

## 11.0 REFERENCES

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American Conference of Governmental Industrial Hygienist, 2010, *Threshold Limit Values and Biological Expose Indices*, Cincinnati, Ohio.

American National Standards Institute, <<http://www.ansi.org/>>.

Code of Federal Regulations, Title 29, Part 1910, *Safety and Health Regulations for General Industry*, U.S. Government Printing Office, Washington, D.C., <<http://www.access.gpo.gov/nara/cfr/index.html>>.

Code of Federal Regulations, Title 29, Part 1926, *Safety and Health Regulations for Construction*, U.S. Government Printing Office, Washington, D.C., <<http://www.access.gpo.gov/nara/cfr/index.html>>.

National Fire Protection Agency 70E, 2009, *Standard for Electrical Safety in the Workplace*, National Fire Protection Association 1, Batterymarch Park, Quincy, Massachusetts.

Shaw Environmental and Infrastructure, Inc., 2010, *Health and Safety Policies and Procedures*, <<http://shawnetv2.shawgrp.com/sites/govern/pp/ei/EHS%20Procedures/Forms/AllItems.aspx>>

Shaw Environmental and Infrastructure, Inc., 2009, *Shaw Environmental and Infrastructure, Inc., Guide – 004, Guidelines for Standard Safety Disciplinary Actions*, September 24.

U.S. Army Corps of Engineers, 2008, *Safety and Health Requirements Manual*, EM-385-1-1, Washington, D.C., September 15.

## ATTACHMENT 1

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### *ACCIDENT PREVENTION PLAN ACKNOWLEDGEMENT FORM*





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## ATTACHMENT 2

### *SITE HEALTH AND SAFETY PLAN*



## SITE HEALTH AND SAFETY PLAN

### REMOVAL ACTIONS AT SITES 19 & 27 NAVAL SUPPORT FACILITY INDIAN HEAD MARYLAND

CONTRACT NO. N62470-08-D-1007

Prepared for:

**Department of the Navy**

NAVFAC Washington

Washington Navy Yard

Building 212

1314 Harwood Street, S.E.

Washington, DC 20374-5018

Prepared by;

**Shaw Environmental and Infrastructure, Inc.**

500 East Main Street, Suite 1630

Norfolk, Virginia 23510

TASK ORDER JU46

SHAW PROJECT NO. 140662

**FEBRUARY 2011**


# Site Safety and Health Plan

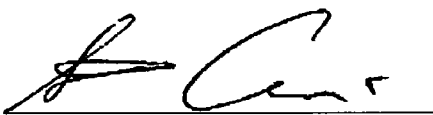
## Removal Actions at Sites 19 & 27

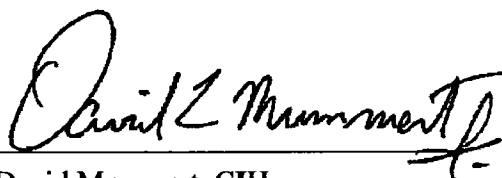
### Naval Support Facility Indian Head Maryland

#### SIGNATURE PAGE

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- Appendix D Shaw Health and Safety Procedures
- Appendix E Shaw Health and Safety Forms
- Appendix F Hurricane Preparedness Plan
- Appendix G OSHA 300 Log



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*LIST OF ACRONYMS AND ABBREVIATIONS*

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ACGIH	American Conference of Governmental Industrial Hygienists
AHA	Activity Hazard Analysis
AHB	Africanized honey bee
AIDS	Acquired Immunodeficiency Syndrome
AL	action level
ANSI	American National Standards Institute
APP	Accident Prevention Plan
BZ	breathing zone
Ca	Carcinogen
CFR	Code of Federal Regulations
CIH	Certified Industrial Hygienist
CNS	Central Nervous System
COR	Contracting Officer's Representative
CPR	Cardiopulmonary Resuscitation
CRZ	Contamination Reduction Zone
CSP	Certified Safety Professional
dBA	A-Weighted Decibel
DEET	N, N-diethyl-meta-toluamide
EHB	European honey bee
EM 385	USACE Safety and Health Requirements Manual, EM 385-1-1
EMS	Emergency Medical Service
EOD	Explosive Ordnance Detachment
EZ	Exclusion Zone
GDA	Government Designated Authority
H&S	Health and Safety
HAZWOPER	Hazardous Waste Operations and Emergency Response
HBV	hepatitis B virus
HERO	Hazards of Electromagnetic Radiation to Ordnance
HIV	Human immunodeficiency virus
HPP	Hurricane Preparedness Plan
HSM	Health and Safety Manager
IDLH	Immediately Dangerous to Life and Health
JSA	Job Safety Analysis
LEL	lower explosive limit
MCAS	Marine Corps Base

*LIST OF ACRONYMS AND ABBREVIATIONS (CONTINUED)*

MEC	Munitions and Explosives of Concern
mg/m <sup>3</sup>	milligrams per cubic meter
MRS	Munitions Response Site
MSDS	Material Safety Data Sheet
NAVFAC	Naval Facilities Engineering Command
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
PAHs	polycyclic aromatic hydrocarbons
PEL	permissible exposure limit
PFD	personal flotation device
PM	Project Manager
PPE	Personal Protective Equipment
PPM	parts per million
psig	pounds per square inch gravity
PVC	polyvinyl chloride
Shaw	Shaw Environmental and Infrastructure, Inc.
SOW	Scope of Work
SS	Site Superintendent
SSHO	Site Safety and Health Officer
SSHP	Site Safety and Health Plan
STEL	short-term exposure limit
SZ	Support Zone
TLV	Threshold Limit Value
TCRA	Time Critical Removal Action
TWA	Time-Weighted Average
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
USEPA	US Environmental Protection Agency
UXO	Unexploded Ordnance
WP	Work Plan

## *1.0 INTRODUCTION*

---

### **1.1 OBJECTIVE**

This Site Safety and Health Plan (SSHP) describes the health and safety guidelines developed to protect onsite personnel, visitors, and the public from physical harm and exposure to hazardous materials and incidents during remedial activities at the site. The procedures and guidelines contained herein are based upon the best available information at the time of the SSHP's preparation. Specific requirements may be revised if new information is received or site conditions change. Any amendments to this SSHP will be made with the knowledge and concurrence of both Shaw Environmental and Infrastructure, Inc. (Shaw) and Naval Facilities Engineering Command (NAVFAC). Where appropriate, specific Occupational Safety and Health Administration (OSHA) standards, United States Army Corps of Engineers (USACE) standards, or other guidance documents will be cited and applied.

This SSHP will be used in conjunction with the Shaw Health and Safety (H&S) Policies and Procedures Manual and will supplement the project Accident Prevention Plan (APP) and the Work Plan.

This SSHP has been designed for the methods presently contemplated by Shaw for execution of the proposed work to be conducted on these task orders. This SSHP may not be appropriate if the work is not performed by Shaw or does not employ the methods presently contemplated by Shaw. Additionally, this SSHP will require amendment if the scope of work is modified by the Navy. Revisions to this SSHP will be included as a SSHP Amendment and appended to this SSHP in **Attachment 1**, "Health and Safety Plan Amendments". This SSHP applies to Shaw employees and subcontractors under the direct supervision of Shaw. Each person working on this project must sign the APP Acknowledgement Form (APP, Attachment 1).

## ***2.0 SITE HISTORY/SCOPE OF WORK***

---

### **2.1 BACKGROUND**

Project background information is provided in Section 1.0 of the Work Plan (WP). The project site is located at the NSF-ID, Indian Head, Maryland; as shown on Figure 2.1, Site Location Map.

### **2.2 SCOPE OF WORK**

The primary objective is to perform the removal of contaminated soil at Site 19 and 27. The project activities are listed below and discussed in further detail in Section 3.0 of the WP.

Shaw will complete the following field tasks:

- Mobilization and Site Preparation,
- Excavation,
- Waste Characterization and Clean Fill Sampling,
- Transportation & Disposal,
- Site Restoration, and
- Demobilization.

These site activities have been analyzed for potential hazards for which control measures are provided in Appendix B, "Activity Hazard Analyses" of this SSHP.

### *3.0 KEY PERSONNEL AND MANAGEMENT*

---

There will be numerous personnel required to complete this project. The necessary personnel will be offsite project team members, onsite Shaw project personnel, and various subcontractors. All project personnel share the responsibility for safely completing project activities. Detailed information regarding key personnel and Management is contained in **Section 4.0** of the APP.

## ***4.0 HAZARD/RISK ANALYSIS***

---

There are potential chemical, physical and environmental hazards, present at the project site. The anticipated hazards at the project site and the recommended control measures are presented in this section.

### **4.1 ACTIVITY HAZARD ANALYSES**

Task specific activity hazard analyses (AHAs) have been developed for all major tasks to be performed for this project and are provided in **Appendix B**. Refer to **Section 10.0** of the APP.

### **4.2 CHEMICAL HAZARDS**

The following general symptoms may indicate exposure to a hazardous chemical. Personnel will be removed from the work site and provided immediate medical attention if the following symptoms occur:

- Loss of appetite,
- Weakness in wrists or ankles,
- Dizziness or stupor,
- Nausea, headaches, or cramps,
- Irritation of the eyes, nose, or throat,
- Chest pains and coughing, or
- Rashes or burns.

A brief description of the exposure limits used in this section is provided below:

- **Threshold Limit Value (TLV) - Time-Weighted Average (TWA)** - Airborne concentrations of substances; generally expressed as an 8-hour TWA and representing conditions under which it is believed that nearly all workers may be repeatedly exposed day after day for a 40-hour work week without adverse health effects. TLVs are guidelines for occupational exposures established by the American Conference of Governmental Industrial Hygienists (ACGIH) (2010).
- **TLV - Short Term Exposure Limit (STEL)** - The 15-minute TWA airborne concentrations of substances that should not be exceeded at any time during a workday, even if the 8-hour TWA is within the TLV-TWA. TLVs are guidelines for occupational exposures established by the ACGIH (2010).
- **Immediately Dangerous to Life or Health (IDLH)** - The National Institute of Occupational Safety and Health (NIOSH) defines IDLH as the air concentrations that represent the maximum concentrations from which, in the event of respirator failure, one could escape within 30 minutes without a respirator and without experiencing any escape-impairing or irreversible health effects.

- Recommended Exposure Limit - The TWA concentration exposure for up to a 10-hour workday during a 40-hour workweek as recommended by NIOSH.
- Permissible Exposure Limit (PEL) - The 8-hour TWA, short-term exposure limit, or ceiling concentration above which workers cannot be exposed. PELs are enforceable by OSHA.

#### 4.3 MUNITIONS AND EXPLOSIVES OF CONCERN

Munitions and explosives of concern (MEC) are defined as ammunition; ammunition components; chemical or biological warfare material; or explosives that have been abandoned, expelled from demolition pits or burning pads, lost, discarded, buried, or fired. Unexploded ordnance (UXO) is defined as military munitions that have been primed, fused, armed, or otherwise prepared for action and have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to the operations, installations, personnel, or material, and remain unexploded either by malfunction, design, or any other cause..

Handling of MEC is not expected to be part of this scope. However, if MEC is encountered all MEC activities will be conducted in accordance with the general guidance contained in Explosives - Safety and Health Requirements Manual (USACE, 2008b), Basic Safety Concepts and Considerations for Munitions and Explosives of Concern (MEC) Response Action Operations (USACE, 2004a).

If a suspected MEC item is encountered:

- DO NOT TOUCH, DO NOT DISTURB.
- Note the item's features such as: location (Accuracy is essential to ensure the item can be located again.) size, shape, color, any markings.
- Take a photograph.
- Retreat the way you came in, or take the safest path.
- Warn people in the area and evacuate everyone within 300 meters of the MEC.
- Notify Base security, Project Manager (PM), Site Safety and Health Officer (SSHO) and Navy representative.
- Assist the UXO/Explosive Ordnance Detachment (EOD) team in locating the MEC and follow their instructions for safe evacuation, distance and other precautions.

#### **4.4 OPERATIONAL CHEMICALS/HAZARD COMMUNICATION**

Hazardous chemicals will be brought to project sites for use in activities supporting the planned work. These chemicals may be used as fuels, construction materials, solvents, cements, cleaning solutions, paints, etc. The use of operational chemicals is regulated by OSHA under the Hazard Communication Standard (29 CFR 1910.1200). The purpose of hazard communication (Employee Right-to-Know) is to ensure that the hazards of all chemicals located at this field project site are communicated to all onsite personnel and subcontractors.

Hazard communication will include container labeling, material safety data sheets (MSDSs), and employee information and training. The following written hazard communication program has been established in accordance with Shaw Procedure No. HS060, "*Hazard Communication Program*" (2010).

##### **4.4.1 Container Labeling**

Shaw personnel will ensure that all containers are labeled according to contents. These containers will include those from manufacturers and those produced onsite by operations, such as gasoline and diesel safety cans. All incoming and outgoing labels shall be checked for identity, hazard warning, and name and address of responsible party.

##### **4.4.2 Material Safety Data Sheets**

There will be an MSDS located onsite for each hazardous chemical known to be used onsite. MSDSs are located in **Appendix C**.

##### **4.4.3 Employee Information and Training**

Training employees on chemical hazards is accomplished through an ongoing corporate training program. All site employees shall maintain their Hazardous Waste Operations and Emergency Response (HAZWOPER) Standard training, in accordance with 29 CFR 1910.120 and 29 CFR 1926.65. Chemical hazards are communicated to employees during the initial site orientation program. Additionally, morning safety meetings will be held and the hazardous materials used onsite will be discussed. Attendance at the morning safety meeting is mandatory for all onsite employees.

At a minimum, Shaw and related subcontractor employees will be instructed on the following:

- OSHA regulated chemicals and their hazards in the work area,
- How to prevent exposure to these hazardous chemicals,
- What the company has done to prevent workers' exposure to these chemicals,
- Procedures to follow if they are exposed to these chemicals,



- How to read and interpret labels and MSDSs for hazardous substances found on Shaw sites,
- Emergency spill procedures, and
- Proper storage and labeling.

Before any new chemical is introduced onsite, each Shaw and related subcontractor employee will be given information in the same manner as during the safety class. The SSHO will be responsible for ensuring that the MSDS on a new chemical is available for review by onsite personnel. The information pertinent to the chemical hazards will be communicated to all project personnel.

The written hazard communication program will be available at the project site for personnel review and provides requirements for the safe use of operational chemicals. Air monitoring may be performed as needed to assess and control exposure resulting from the use of operational chemicals. Both an inventory list of the operational chemicals (Hazardous Chemical Inventory list) used and the associated MSDS shall be made available at the project site (**Appendix C**).

#### **4.5 PHYSICAL HAZARDS**

There will be numerous physical hazards associated with site operations that require consideration. Some of these physical hazards are as follows:

- Noise and hearing conservation,
- Slips, trips, and falls,
- Fires, explosions, and hot work,
- Use of ladders,
- Use of small tools,
- Use of cutting tools,
- Use of heavy and mechanized equipment,
- Operation of motor vehicles,
- Operation of utility vehicles,
- Material handling,
- Hazardous energies (*i.e.*, electrical, mechanical, and pressure),
- Intrusive activities,
- Excavation,
- Dust,
- Use of pressure washers or steam washers, and/or
- Excessive work hours.

Physical hazards must be controlled by engineering, administration, or the use of personal protective equipment (PPE). The specific physical hazards anticipated for this project and associated control measures are found in the following sections and in task-specific AHAs (**Appendix B**). The AHAs identify potential safety, health, and environmental hazards and measures to protect personnel, the community, and the environment. The AHAs describe the sequence of work, specific hazards anticipated, and control measures that will be used to minimize or eliminate each hazard.

#### **4.5.1 Noise and Hearing Conservation**

Many sources of noise will be present at the project site. Noise may be generated from the use of heavy equipment and tools, or may be from existing operations. Hearing loss resulting from occupational exposure to noise can be prevented. Shaw Procedure No. HS402, “*Hearing Conservation Program*” (2010), shall be implemented at the project site whenever there are employee noise exposures equal to or exceeding an 8-hour TWA of 85 decibels, A-scale (dBA). As part of the criteria for a hearing conservation program, audiometric testing of personnel must be conducted annually. The SSHO or Health and Safety Manager (HSM) shall conduct noise surveys as necessary to determine if engineering controls should be implemented and/or if hearing protection is adequate. Personnel shall wear hearing protection when working with or around heavy equipment, power tools, as noise monitoring indicates, or in areas posted as such. Warning signs shall be posted in areas where noise (greater than 85 dBA) necessitates the use of hearing protection as indicated in **Table 4.5** below.

**Table 4.5 Noise Levels and Hearing Protection**

Instrument	Measurement	Action
Type I or Type II Sound Level Meter or Dosimeter	>80 dBA → 85 dBA	Hearing protection recommended. Limit work duration to 8-hour shifts.
	>85 dBA → 90 dBA	Hearing protection required. Limit work duration to 8-hour shifts.
	>90 dBA → 115 dBA	Hearing protection required. Investigate use of engineering controls. Limit work duration to 8-hour shifts.
	>115 dBA	Stop work. Consult Program HSM

#### **4.5.2 Slips, Trips, and Falls**

Fall hazards represent one of the greatest risks to worker safety on the project. It is not anticipated that project personnel will be working near steep drop-offs, leading edges, and on steep slopes. In the event a fall hazard of 6 feet or greater is present Shaw Procedure No. HS301, “*Fall Protection*” (2010), shall be followed. In any event, the following general protection procedures shall be followed.

##### **4.5.2.1 Fall Protection**

Before start-up of any work where fall hazards exist, personnel onsite shall employ one or more of the following fall protection methods:

- Guardrails,
- Personal fall arrest system (full-body harness, lanyard, life line, and anchorage point),
- Access control.

Fall protection methods may change during project work. The SSHO will assist project personnel with selection, installation, and maintenance of the fall protection equipment. In addition, all site personnel will receive fall protection training before exposure to fall hazards.

#### **4.5.2.2 General Fall Protection Guidance**

The following list details the procedures to prevent slips, trips, and falls:

- Personnel shall keep working areas clean and orderly. Tools, equipment, and materials shall be used and stored in a fashion to minimize tripping hazards.
- Small, loose items such as equipment, tools, and debris shall not be allowed to accumulate, particularly in areas where personnel walk.
- Walkways and grating shall be kept free of obstacles. Openings in walkways and grating shall be repaired immediately, if possible. If not immediately repaired, the section shall be roped off or closed until repairs can be made.
- Access points or holes in gratings shall be covered or surrounded by an adequate guardrail.
- Personnel shall take extra precautions such as establishing firm handholds, wearing suitable footwear, and walking slowly when walking on surfaces during wet weather.
- Personnel shall not jump from elevated places or equipment.
- Personnel using hand and mechanical tools shall position themselves properly and consider the repercussions if a tool slips or suddenly moves.
- Personnel shall not walk or climb on piping, valves, fittings, or any other equipment not designed as walking surfaces.
- Stairways, walkovers, or ramps shall be installed where personnel must walk or step over equipment in the course of their normal duties.
- Electrical extension cords and electrical wiring shall be kept clear of walking and working areas and/or covered, buried, or otherwise secured.
- Walking and working surfaces shall be properly maintained during inclement weather.
- Running is prohibited on job sites unless under emergency conditions.
- Employees exposed to fall hazards shall be protected by standard guardrails, catch platforms, temporary floors, safety nets, personal fall protection devices, or the

equivalent. No employee may be exposed to a fall of over 6 feet without being adequately protected.

#### **4.5.3 Fires, Explosions, Hot Work**

Although, not anticipated to be conducted under the SOW, hot work (e.g., welding, burning, and cutting) conducted onsite shall comply with the following requirements:

- Shaw Procedure No. HS314, "*Hot Work in Hazardous Locations*" (2010), shall be followed whenever there are spark- and/or ignition-producing activities in progress at the project site.
- Hot Work Permits shall be obtained from the base fire department.
- The SSHO shall establish areas approved for welding, cutting, and other hot work.
- The SSHO is responsible for authorizing welding, cutting, and other hot work in areas not specifically designed or approved for such operations.
- All personnel shall be protected from welding radiation, flashes, sparks, molten metal, and slag.
- All welding, burning, and cutting equipment shall be inspected daily by the operator. Defective equipment shall be tagged and removed from service, replaced or repaired, and re-inspected before again being placed in service.
- All welders, cutters, and their supervisors shall be properly trained in the safe operation of their equipment, safe welding/cutting practices, and welding/cutting respiratory and fire protection.
- The handling of compressed gas cylinders shall comply with the requirements established in Shaw Procedure No. HS304, "*Compressed Gas Cylinders*" (2010).
- Cutting, welding, or other hot work shall be permitted only in areas that are or have been made fire-safe.
- Compressed gas cylinders shall be safely handled as follows:
  - All torch valves and gas supply shall be shut off when work is suspended.
  - The valve wrench or wheel shall be in operating position when cylinder is in use.
  - Cylinders shall be stored in well-ventilated locations.
  - Oxygen cylinders in storage and fuel gases shall be separated by a fire resistive wall or by a distance of 20 feet.
  - Oxygen shall not be used to blow dust out of clothes, hair, or to cool off.
  - "No Smoking" signs shall be posted around cylinder storage area.
  - The pressure on the working side of the acetylene regulator should not be greater than 15 pounds per square inch gravity (psig).
  - Compressed gas cylinders shall be separated from flammable or combustible material by at least 40 feet.
  - All oxygen-fuel gas cutting or welding shall be equipped with reverse-flow check valves between torch & hoses.

- In any area where combustible gas indicator readings are in excess of 10 percent of the lower explosive limit (LEL).
- Cutting, welding, or other hot work shall be permitted only in areas that are or have been made fire safe.
- Cutting or welding shall NOT be permitted in the following situations:
  - In areas not authorized by the SSHO.
  - In the presence of explosive atmospheres (i.e., mixtures of flammable gases, vapors, liquids, or dusts with air) or explosive atmospheres that may develop inside un-cleaned or improperly prepared drums, tanks, or other containers, and equipment that has previously contained such materials.
  - In any area where combustible gas indicator readings are in excess of 10 percent of the LEL.
  - On in-service storage or process vessels or lines that contain flammable or combustible liquids, gases, vapors, or solids.
- Before any welding, cutting, or other hot work is permitted, the area shall be inspected by the SSHO to verify that the following requirements have been met:
  - Cutting and welding equipment to be used shall be in safe operating condition and in good repair.
  - Where practical, all combustible material shall be relocated at least 50 feet away from the hot work site. Where relocation is impractical, combustibles shall be protected with flame-proof covers or otherwise shielded.
  - At a minimum, two fully charged and operable fire extinguishers appropriate for the type of possible fire (2-A: 20: B: C) shall be available at the work area.
  - A fire watch shall be required whenever hot work is performed in hazardous locations.
  - Combustible gas indicator readings shall be taken to verify the work area is free of combustible gases and vapors.
  - The work area is free of toxic contaminants at concentrations in excess of established PELs or all personnel who will work in the area have been provided respiratory protection and protective apparel appropriate for the degree of exposure.
  - When hot work is to be performed on tanks or other vessels that contain or have contained flammable or combustible liquids, the vessel shall be properly isolated, purged, cleaned, or made inert as appropriate to reduce the concentrations of flammable/combustible vapors to safe levels.
  - A Hot Work Permit form (Appendix E) shall be completed by the SSHO, reviewed with personnel who will perform the hot work, and posted near the job site. An additional Hot Work Permit form may be required by Base authorities.
  - Hot Work Permits are good only for the date issued and is valid only for the 8-hour shift for which it is issued. If the work area is completely vacated by personnel, such as during lunch, a new permit may need to be issued.
  - If at any time during the hot work operation a change in conditions at the work site is suspected, such as a release of flammable gases or vapors in the work area, work shall be stopped immediately and the SSHO shall be notified. Such

- work stoppage invalidates the Hot Work Permit, and a new permit shall be completed after inspections and tests have been performed by the SSHO.
- No erasures or changes of dates on Hot Work Permits shall be permitted.

#### **4.5.4 Use of Ladders**

The use of ladders at the project shall comply with Shaw Procedure No. HS302, “*Ladder Safety*” (2010); and Section 24.B of EM 385-1-1.

#### **4.5.5 Use of Small Tools**

Hand and power tools shall be used, inspected, and maintained in accordance with the manufacturer’s instructions and recommendations and will be used only for the purpose for which designed. A copy of the manufacturer’s instructions and recommendations will be maintained at the project site. The following are the requirements to which personnel shall adhere:

- Tools designed to accommodate guards will be equipped with such guards when in use.
- Tools shall be inspected to ascertain safe operating conditions and are to be kept clean and free of accumulated dirt.
- Electric power tools and extension cords shall be used with ground fault circuit interrupters.
- Portable power cords will be designated as hard usage or extra-hard usage and shall not be used if damaged, patched, oil-soaked, worn, or frayed.
- Hand tools that may be used by field and drill crews, such as hammers and chisels, shall be inspected and dressed if necessary to remove mushroomed heads, which may separate and become projectile hazards.
- Connections on pneumatic lines shall be secured with a safety lashing.
- Explosive-actuated tools will meet the design requirements of American National Standards Institute (ANSI) A10.3 and only be operated by a qualified operator.
- Explosive-actuated tools and charges shall be secured at all times to prevent unauthorized possession or use.
- Explosive-actuated tools shall not be loaded until just prior to the intended firing time; neither loaded nor empty tools are to be pointed at any employees, and hands shall be kept clear of the open barrel end.

#### **4.5.6 Use of Cutting Tools**

Proper cutting tools, such as scissors, snips, side cutters, *etc.*, are to be used when possible in lieu of box cutters. Furthermore, if box cutters are determined to be the appropriate tool for the job, the only type that should be used is the design that has a self-retracting blade capability. Employees must use appropriate PPE (leather gloves) to allow for further protection. Many cutting-tool manufacturers offer a variety of safety knives that are available for all types of

cutting. The SSHO shall evaluate each cutting task to determine that the safest and most appropriate cutting tool is used. The SSHO shall also provide training in the proper use of the selected cutting tool. The following evaluation shall be made for each cutting task:

- Determine that knives are actually the most practical tool for the task. Where possible, use the safest cutting tool for the job (e.g., scissors, snips, or wire strippers).
- If a knife is the correct tool, keep the knife sharp and clean. A dull blade can cause accidents because more force is needed to cut an object. However, a knife or any other unprotected blade tool must be the last resort when choosing a cutting tool.
- Maintain a supply of either replacement knives and/or blades and make them readily available.
- Cut away from yourself, ending the knife stroke away from your body. Hold the item you are cutting firmly, and do not cut downwards and towards your body. Cut into the air or onto hard surface.
- Confirm that appropriate PPE (e.g., gloves) specific to the task is available to employees and used when the possibility of injury exists.
- Personal knives (e.g., pocket knives) shall not be considered as a tool for any type of work-related cutting. Employees are required to ask for a cutting tool from their supervisor or SSHO, thereby resulting in an additional review of using the right cutting tool for the job.
- The SSHO is to inspect all material-cutting activities to verify that leather gloves are being used to protect hands.

#### ***4.5.7 Use of Heavy and Mechanized Equipment***

Excavators, front-end loaders, and other types of specialized heavy equipment may be used to accomplish the work at the site. The use of heavy equipment can be dangerous. Extra care shall be exercised in its use and while working in the vicinity of this equipment.

##### **4.5.7.1 Heavy Construction Equipment**

There are various types of heavy construction equipment that will be used during the project. All operators of this equipment shall be familiar with the requirements for inspection and operation of the equipment that they will be using. Before equipment is placed into use and on a daily basis, the operator is to inspect and verify that it is in safe operating condition, as described in **Section 7.0** of the APP.

The following guidelines shall be used while operating heavy construction equipment:

- Equipment shall not be operated in a manner that will endanger persons or property nor will the safe operating speeds or loads be exceeded.
- Getting on or off any equipment while it is in motion is prohibited.

- Equipment shall be operated in accordance with the manufacturer's instructions and recommendations.
- Determinations of road conditions and structures shall be made in advance to verify that clearances and load capacities are safe for the passage of equipment.
- All machinery or equipment shall be shut down and positive means taken to prevent its operation while repairs or manual lubrications are being done. Equipment designed to be serviced while running is exempt from this requirement.
- Buckets, blades, dump bodies, and similar equipment will be either fully lowered or blocked when being repaired or when not in use. All controls shall be in a neutral position with the engines stopped and brakes set unless work being performed on the machine requires otherwise, per manufacturer recommendations.
- No guard, safety appliance, or device shall be removed from machinery or equipment, or made ineffective except for making immediate repairs, lubrications, or adjustments, and then only after the power has been shut off. All guards and devices will be replaced immediately after completion of repairs and adjustments and before power is turned on.
- Mechanized equipment shall be shut down prior to and during fueling operations. Diesel-powered equipment left running may be fueled using closed systems with automatic shut-off, which prevent spillage if connections are broken.
- Each piece of heavy equipment and other similar equipment shall be equipped with at least one dry chemical or carbon dioxide fire extinguisher with a minimum rating of 10-B:C.
- Personnel shall not work, pass under, or ride in the buckets or booms of loaders in operation.
- All self-propelled construction equipment, whether moving alone or in combination, shall be equipped with a reverse signal alarm.
- Seat-belt use is required while operating equipment.

Spotters for the operator shall be the only personnel allowed in the vicinity of the heavy equipment. Spotters shall stay out of the boom radius area. Personnel needing to approach heavy equipment while in operation shall observe the following protocols:

- Wear Class 2 high visibility vests meeting ANSI specifications.
- Make eye contact with the operator (and spotter).
- Signal the operator to cease heavy equipment activity.
- Approach the equipment only after the operator has given signal to do so.

#### **4.5.7.2 Mechanized Equipment – Use of Quick Connect/Disconnect Systems**

The manufacturer's specifications and operating manuals for hydraulic equipment and attachments using quick connect/disconnect systems shall be followed. After completing a switch in attachments, the equipment operator shall take the actions necessary to verify the quick



connect/disconnect system is positively engaged.

#### **4.5.7.3 Hydraulic Excavators, Wheel Loaders, Track Loaders, and Backhoe/Loaders Used to Transport or Hoist Loads with Rigging**

When hydraulic-excavating equipment is to be used to transport or hoist loads using hooks, eyes, slings, chains, or other rigging, the following requirements shall apply:

- Operations involving the use of hydraulic-excavating equipment and rigging to transport or hoist loads require different operator skills and considerations than the standard excavating operations routinely performed with hydraulic-excavating equipment. An AHA specific to the transporting or hoisting operation shall be prepared. The AHA shall include, but is not limited to, the following:
  - Written proof of qualifications of equipment operators, riggers, and others involved in the transporting and hoisting operations.
  - Performance of the operational test described in USACE Safety and Health Requirements Manual, EM385-1-1 (EM 385), Section 16.F (USACE, 2008).
  - Proper operating procedures in accordance with the equipment manufacturer's operating manual.
  - Proper use and onsite availability of manufacturer's load-rating capacities or charts.
  - Proper use of rigging, including positive latching devices to secure the load and rigging.
  - Inspection of rigging.
  - Use of tag lines to control the load.
  - Communications.
  - Establishment of a sufficient swing radius (equipment, rigging, and load).
  - Stability of surfaces beneath the hydraulic-excavating equipment.
- An operational test with the selected hydraulic-excavating equipment will be performed. The operational test shall consist of a demonstration that the test load and selected rigging can be safely lifted, maneuvered, controlled, stopped, and landed. The operational test shall be representative of the complete cycle of the proposed transporting or hoisting operation, including configuration, orientation, and positioning of the excavating equipment and the use of identical rigging. The test load shall be equivalent to the maximum anticipated load, but shall not exceed 100 percent of the manufacturer's load-rating capacity for the excavating equipment as configured. Written documentation of the performance of the operational test outlining test procedures and results shall be maintained at the onsite project office.
- All rigging and rigging operations shall comply with the requirements of Section 15 of EM 385 (USACE, 2008). Hooks, eyes, slings, chains, or other rigging shall

not be attached to or hung from the teeth of a bucket during the transporting or hoisting of a load by hydraulic-excavating equipment.

- After the completion and acceptance of an operational test described in Section 16.F of EM 385 (USACE, 2008), if repairs, major maintenance, or reconfiguration are required to be performed on the hydraulic-excavating equipment or attachments, another operational test as described in Section 16.F shall be performed to demonstrate that the completed repairs are satisfactory and that the test load and selected rigging can be safely lifted, maneuvered, controlled, stopped, and landed.
- Loads shall be lifted the minimum height necessary to clear the ground or other obstacles and carried as low as possible when the equipment is traveling.
- Loads shall not be lifted over personnel.
- Adequate clearances shall be maintained from electrical sources.
- Hydraulic-excavating equipment shall not be used to hoist personnel. The riding of personnel on loads, hooks, hammers, buckets, or any other hydraulic-excavating equipment attachment is prohibited. .

#### **4.5.8 Operation of Motor Vehicles**

All Contractor-owned, -leased, or -rented vehicle operations shall comply with the requirements of Shaw Procedure No. HS800, “*Motor Vehicle Operation: General Requirements*” and Shaw Procedure No. HS810, “*Commercial Motor Vehicle Operation and Maintenance*” (2010). Contractor vehicles shall be inspected on a daily basis. Additionally, all Contractor vehicles shall be inspected prior to any trip that is 50 miles or greater. Vehicle inspections shall be documented on the Vehicle Inspection form (**Appendix E**).

Subcontractors operating motor vehicles at projects shall comply with all federal, state, local, and base traffic regulations. Subcontractors shall only use vehicles that are in good condition and safe to operate. Subcontractors shall inspect vehicles used at project sites on a daily basis and submit the inspection documentation to the SSHO. Vehicle inspections shall be documented on the Vehicle Inspection form (**Appendix E**).

All personnel must observe the maximum-posted speed limits on roadways and parking lots. Vehicles must not be parked closer than 15 feet from working fire hydrants. All personnel shall drive defensively and wear seat belts while vehicles are in motion. All employees of the Contractor are required to attend a defensive driving training course biannually.

Vehicle operators working at the project site may only use hazards of electromagnetic radiation to ordnance (HERO) cellular telephones with hands-free devices while the vehicle is in motion. Prior to using a hand-held cellular telephone, drivers shall find a safe place to bring their vehicle to a stop. The use of headphones and earphones for music or radio are prohibited while operating a motor vehicle.

Since backing accidents at these types of projects are frequent, the following guidelines shall be observed:

- Backing of vehicles shall be avoided when possible.
- Extra care shall be taken to back vehicles when unavoidable.
- Back-up slowly and back-up the shortest distance necessary to accomplish the maneuver.
- When parking vehicles, vehicles shall be backed into the space whenever possible.
- Before entering a vehicle, which has been parked, the driver should first physically perform a 360-degree walk around the vehicle to observe all areas and especially the area behind the vehicle.
- Spotters shall be used to back vehicles whenever possible or necessary.

#### **4.5.9 Operation of Utility Vehicles**

The use of utility vehicles (e.g., RTV 900's, Rangers, Gators, Mules, etc.) must comply with Section 18.J of the EM 385. All operators of utility vehicles shall be familiar with the requirements for inspection and operation of the equipment that they will be using. Before equipment is placed into use and on a daily basis, the operator is to inspect and verify that it is in safe operating condition and document the inspection on the Utility Vehicle Inspection Checklist form (**Appendix E**).

Utility vehicle operators shall be trained as follows:

- Operators must be familiar with the use of all controls and understand proper moving, stopping, turning, and other operating characteristics of the vehicle.
- Operators must review all training materials provided by the manufacturer for the specific vehicles, and training should be in accordance with appropriate manufacturer recommendations.
- At a minimum, training shall be documented and shall address:
  - Basic riding tips from the manufacturer's published literature for each vehicle,
  - Reading terrain,
  - Climbing hilly terrain,
  - Descending a hill,
  - Traversing a slope,
  - Riding through water,
  - Cargo carriers and accessories,
  - Loading and unloading,
  - Troubleshooting,

- Proper preventative maintenance, such as, oil levels, tire pressure requirements and scheduled maintenance requirements according to the manufacturer's guidelines.

Additionally, the following requirements are applicable for the use of utility vehicles on this project:

- A copy of the operator's manual shall be kept on the vehicle at all times and protected from the elements.
- Utility vehicles shall be equipped with:
  - An adequate audible warning device (horn), in operable condition, at the operator's station.
  - Brake lights in operable condition regardless of light conditions. Whenever visibility conditions warrant additional light, all vehicles, or combinations of vehicles, in use shall be equipped with at least two headlights and two taillights in operable condition, a yellow flashing light or equivalent.
  - Windshield.
  - Rollover protective structure.
  - Falling object protective structures.
  - Seat belts and anchorages installed by the manufacturer.
  - Small first aid kit.
  - One dry chemical or carbon dioxide fire extinguisher with a minimum rating of 10-B:C.
- Seat belts shall be worn by operators and passengers at all times while the utility vehicle is in motion.
- Equipment shall be operated in accordance with the manufacturer's instructions and recommendations.
- Utility vehicles shall not be driven on public roadways except to cross the roadway, and will only be driven on a public roadway at designated crossing points or with a road guard.
- Occupancy in utility vehicles is limited to manufacturer designated seating that has built-in seatbelts. Passengers may not ride in the vehicles back cargo area unless the vehicle is otherwise equipped by the manufacturer.
- The manufacturer's recommended load carrying capacity, personnel capacity, or maximum safe vehicle speed shall not be exceeded at any time.
- Cargo items will be secured as necessary to prevent movement/tipping. All loads over 50 pounds must be securely strapped to cargo tie-downs in the rear and to the cargo shelf in the front.
- Manufacturer-installed safety equipment will be maintained in working order and used in accordance with manufacturer's recommendations.

#### **4.5.10 Material Handling**

Various materials and equipment may be handled manually during project operations. Care should be taken when lifting and handling heavy or bulky items to avoid back injuries. The following fundamentals address the proper lifting techniques that are essential in preventing back injuries:

- Size, shape, and weight of the object to be lifted shall first be considered. No individual employee is permitted to lift any object that weighs over 60 pounds. Multiple employees or the use of mechanical lifting devices are required for objects over the 60-pound limit.
- Anticipated path to be taken by the lifter should be inspected for the presence of slip, trip, and fall hazards.
- Feet shall be placed far enough apart for good balance and stability (typically shoulder width).
- Worker shall get as close to the load as possible. Legs shall be bent at the knees.
- Back shall be kept as straight as possible and abdominal muscles should be tightened.
- Twisting motions should be avoided when performing manual lifts.
- To lift the object, the legs are straightened from their bending position.
- Take small turning steps without twisting the knees or the back if it is necessary to turn with the load.
- A worker shall never carry a load that cannot be seen over or around.
- When placing an object down, the stance and position are identical to that for lifting. The legs are bent at the knees and the object lowered.

When two or more workers are required to handle the same object, coordination is essential to equally share the weight between the individuals carrying the load and making a uniform lift. When carrying the object, each worker, if possible, shall face the direction in which the object is being carried. In handling bulky or heavy items, the following guidelines shall be followed to avoid injury to the hands and fingers:

- A firm grip on the object is essential; leather gloves shall be used if necessary.
- Hands and the object shall be free of oil, grease, and water, which might prevent a firm grip. Fingers shall be kept away from any points that could cause them to be pinched or crushed, especially when setting the object down.
- Items shall be inspected for metal slivers, sharp or jagged edges, burrs, and rough or slippery surfaces prior to being lifted.

#### **4.5.11 Hazardous Energies**

**Section 9.19** of the APP presents the Hazardous Energy Control Plan for this project.

#### **4.5.12 Intrusive Activities**

Intrusive activities are defined as any activity that produces a man-made cut, cavity, trench, or depression into the earth's surface formed by earth removal or any activity that results in an object placed into the earth below the surface. These activities include excavating, drilling, auguring, boring, shoveling, fence-post driving, driving stakes, *etc.* Intrusive activities can be dangerous and can result in severe personal injury or death. Intrusive activities can also cause significant property damage to both utilities/structures and operational equipment. Breaching underground utilities can result in electrocution from damaged electrical lines, fires from broken fuel/gas lines, and disruption of telephone service. All intrusive activities must comply with Shaw Procedure No. HS308, "*Underground/Overhead Utility Contact Prevention*" (2010).

Before any intrusive activity begins, positive steps shall be taken to determine if the area contains underground utilities or overhead hazards. It is important to understand that underground utilities have been found in areas that have been properly investigated and thought not to have utilities present. Personnel shall always be alert for marking tape, wires, pipes, previously disturbed soil, crushed stone or sand bedding/backfill, containers, discolored soil, MEC, or anything else unusual.

The Intrusive Activities Clearance Procedure shall be followed. The procedure is designed to identify and protect underground installations or to indicate that none exists. Intrusive activity shall not begin until the Site Superintendent (SS) (or designee) and the SSHO have signed off on the Intrusive Activities Permit (**Appendix E**).

##### **4.5.12.1 Intrusive Activities Clearance Procedure**

The SSHO or SS (or designee) will perform the following tasks:

- Prepare a map indicating the area(s) where intrusive activity is planned to occur.
- Perform the necessary reviews.
- Contact base engineering and the local one-call notification service (811). This notification is to be made a minimum of 3 working days prior to the initiation of intrusive activity (excluding Saturdays, Sundays, and holidays).
- Prepare and complete the Base Utility Permit.
- Contact Miss Utility and the Navy to locate and mark the locations of the underground installations and, if they so desire, direct or assist with protecting the underground installations.
- Verify that all underground installations have been located, physically marked, and then noted on the map.
- Mark all overhead utilities with kilovolts rating on the map. Refer to **Table 9.19** of the APP, when working near overhead power lines.

- Complete the Utility Mark-Out Documentation form (**Appendix E**).
- Issue the Intrusive Activities Permit.

A safety meeting shall be held and a Job Safety Analysis (JSA) shall be completed by all personnel involved in the intrusive activities prior to initiating work.

#### **4.5.13 Excavations**

Excavations less than 5 feet in depth in which a competent person, as defined in 29 CFR 1926.650, examines and determines there to be no potential for cave-in, do not require protective systems. For excavations less than 5 feet deep, refer to the AHA covering excavation activities. If an anomaly is identified and it is determined that an excavation greater than 5 feet deep will be necessary for recovery, then an Excavation/Trenching Plan IAW EM 385-1-1 25.A.01 will be prepared, submitted, and accepted by the Government Designated Authority (GDA).

The limits of disturbance will be clearly marked on the ground, and the project work area will be surveyed for utilities to ensure the locations of all utilities in/around the site are known. Measures will be taken to avoid disruption should these utilities require relocation during this removal action. Shaw will request a utility mark out from a private utility locator. All utilities will be adequately marked and protected before the commencement of any earth disturbing activities.

When performing excavation activities, Shaw Procedure Nos. HS307, “*Excavation and Trenching*,” (2010) and HS308, “*Underground/Overhead Utility Contact Prevention*” (2010) shall be followed. Any excavation five feet deep or greater into which persons will enter and perform work shall be shored, sloped, or otherwise made safe for entry. Excavations less than five feet in depth in which a competent person, as defined in 29 CFR 1926.650, examines and determines there to be no potential for cave-in, do not require protective systems.

Daily inspections of the excavation shall be made by a competent person as defined in 29 CFR 1926.650. All excavated materials shall be placed at least two feet from the edge of the excavation. Perimeter protection shall be provided for unattended excavations as specified in Section 25.B of EM 385 (USACE, 2008). The SS and the SSHO shall evaluate the exposure of the excavation to employees, the public, vehicles, and equipment. This evaluation shall be used in determining the class of perimeter protection.

All project personnel shall participate in the site-specific training session and be instructed on the following requirements:

- Before starting intrusive activities such as excavating, drilling, *etc.*, the existence and location of underground pipes, electrical equipment, communication lines, gas

lines, *etc.* shall be determined and documented. Only hand digging is permitted within three feet of underground high voltage, product, or gas lines. Once the line is exposed, heavy equipment can be used but must remain at least three feet from the exposed line.

- Operations shall be suspended, ignition sources eliminated, and the area shall be ventilated if the concentration of flammable/combustible vapors reach or exceed 10% of the LEL. A combustible gas indicator shall be used to make this determination.
- If excavating equipment is being operated in the vicinity of overhead power lines, Table 9.19 of the APP will be used to determine safe working distances.
- Personnel entry into any excavation five feet deep or greater is only permitted if the necessary protective systems are in place. Employees shall wear a harness with a lifeline securely attached to it when entering excavations classified as confined spaces or that otherwise present the potential for emergency rescue.
- Employees shall not work in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation. If water is controlled or prevented from accumulating by the use of water-removal equipment, the process shall be monitored by a competent person to ensure proper operation.
- Excavations greater than four feet in depth in which personnel are required to enter shall have sufficient means of entry and egress (*e.g.*, stairs, ladders, and ramps). Ladders will be provided and secured as necessary. Ladders shall extend at least three feet above grade. Means of entry/egress shall not require personnel to travel laterally more than 25 feet.

#### **4.5.14 Confined Space Entry**

A confined space is defined as a space large enough and configured so that an employee can bodily enter and perform assigned work, has limited means for entry or exit, and is not designed for continuous employee occupancy. Confined space work may pose additional hazards such as chemical exposures, flammable/explosive atmospheres, electrocution, oxygen deficiency, *etc.* The Contractor has detailed training for confined space entry: only properly trained personnel shall supervise and participate in confined space entry procedures or serve as standby attendants.

Confined space entry is not required based on the current SOW. In the event the scope changes and confined space entry becomes necessary, the entry shall be delayed until a site specific confined space entry program has been prepared and approved.

#### **4.5.15 Dust**

The generation of dust and fugitive emissions shall be prevented when possible and controlled when necessary. Work practices shall be adjusted in a manner to minimize dust generation, such as lowering excavation rates, not letting soil free-fall from equipment buckets, and traveling



slowly on dirt roads. Personnel shall avoid working in dust by positioning themselves upwind of dust-generating activities. Excessive dust shall be controlled by suppression with water. Dust that is not controlled may necessitate the use of respiratory protection.

#### ***4.5.16 Use of Pressure Washers or Steam Washers***

The use of steam/pressure washers shall comply with Shaw Procedure No. HS303, “*Pressurized Water Cleaning and Cutting Equipment*” (2010). All personnel using steam/pressure washers shall wear Level D modified PPE at a minimum, which is consistent with the contamination being removed. Requirements for Level D – Modified PPE are specified in **Section 6.0** of this SSHP. Additionally, eye, face, and shin/metatarsal protection is mandatory.

The pressure/steam washer shall be inspected before each use. The manufacturer’s instruction manual shall be used to guide the inspection process.

Personnel shall be trained in the use of the washing equipment. All personnel working in the equipment decontamination area shall be trained in the emergency shut-off procedures for the equipment being used. The minimum amount of steam/pressure that will complete the job should be used. Pressure washers exceeding 3,000 pounds per square inch shall not be used without the approval of the HSM.

The spray from such equipment shall only be directed at surfaces to be cleaned and never at body parts or other personnel because high-pressure water can cause injury. Personnel working in the immediate area shall also use eye, face, and shin/metatarsal protection.

Personnel shall keep a firm grip on the wand and not point it at anything that is not being washed. Pressure-washer operators must maintain good footing. The trigger on the wand shall never be wired/fixed open. Operators are to take adequate breaks to avoid fatigue.

Hot surfaces shall be avoided. Pressure or steam-washing equipment shall be shut off and allowed to cool prior to re-fueling.

#### ***4.5.17 Excessive Work Hours***

The following workday duration limitations for hours worked on the projects are in effect:

- All personnel performing munitions response activities that present an explosive risk will be limited to a 50-hour workweek, with no individual workday exceeding 10 hours total, unless specifically authorized by the Contracting Officer’s Representative (COR).
- Personnel working on projects, including those who are operating hoisting equipment or mobile construction equipment, may work up to 12 hours at the site, which includes travel time to housing, but excludes non-compensated time. This workday duration is subject to reduction by the other requirements and factors described below. The 12-hour limit is primarily due to motor vehicle driving restrictions.

- Personnel shall not operate motor vehicles after being in a duty status (regardless of their role or function) for more than 12 hours during any 24-hour period without at least eight consecutive hours of rest. A minimum of eight consecutive hours shall be provided for rest in each 24-hour period.
- No employee may drive continuously for more than 10 hours in any single on-duty period. (Continuous period of more than 10 hours in any 24-hour period without at least eight consecutive hours of rest.)

For each project effort, the SSHO is responsible for adjusting the workday duration within the limits set above.

The following factors will be considered by the SSHO for adjusting the workday duration:

- Time of year (e.g., reduce workday duration because there is less daylight in winter).
- Temperature/weather (e.g., reduce workday duration when the temperature is very cold, very hot, or very windy).
- Type of work (e.g., reduce workday duration for personnel involved in physically demanding phases of work).
- Individual personnel limitations (e.g., reduce workday duration for personnel with minor head colds or suffering from temporary effects of allergies).

For any questions regarding the implementation of this policy, contact the HSM.

#### **4.6 ENVIRONMENTAL HAZARDS**

In addition to chemical and physical hazards, there are environmental/biological hazards that may pose a hazard when performing outdoor tasks associated with this project. For the purposes of this SSHP, the biological hazards are comprised of heat/cold stress, sunburn, poisonous plants, spiders, flying insects, snakes, ticks, chiggers, and viruses. Since some people are more sensitive or allergic to various biological hazards, the Allergy/Sensitivity Questionnaire (**Appendix E**) may be voluntarily completed by personnel during site orientation training. This form is used to alert the SSHO of these sensitivities so that additional precautions may be taken.

##### ***4.6.1 Heat Stress / Cold Stress***

The heat stress / cold stress monitoring plans for project personnel are presented in **Section 9.14** of the APP.

##### ***4.6.2 Sunburn***

Personnel working in direct sunlight are encouraged to apply sunscreen to all unprotected skin surfaces. The benefits of preventing sunburn and skin cancer are self-evident. Sunscreen will be provided for use by project personnel while working onsite.

### 4.6.3 *Poisonous Plants*

Poison Ivy (*Rhus Radicans*) may be found at the site. It is highly recommended that all personnel entering into an area with poison ivy wear a minimum of a Tyvek® coverall, to avoid skin contact.

The majority of skin reactions following contact with offending plants are allergic in nature and characterized by:

- General symptoms of headache and fever,
- Itching,
- Redness, and/or
- A rash.

Some of the most common and most severe allergic reactions result from contact with plants of the poison ivy group, including poison oak and poison sumac. Such plants produce severe rash characterized by redness, blisters, swelling, and intense burning and itching. The victim may develop a high fever and feel very ill. Ordinarily, the rash begins within a few hours after exposure, but may be delayed 24 to 48 hours.

A barrier cream (e.g., Ivy Block, 1-800-991-DERM or [info@hylands.com](mailto:info@hylands.com)) should be applied to the exposed skin before entering and working in areas with possible poisonous plants.

**Distinguishing Features of Poison Ivy Group Plants:** The most distinctive features of poison ivy and poison oak are their leaves, which are composed of three leaflets each. Both plants have greenish-white flowers and berries that grow in clusters. See **Figure 4.7** for photos and descriptions.

#### **First Aid:**

- Remove contaminated clothing; wash all exposed areas thoroughly with soap and water, followed by rubbing alcohol. A one percent hydrocortisone cream (over-the-counter) will aid in healing and reducing itch.
- Apply calamine or other soothing lotion if rash is mild.
- Seek medical advice if a severe reaction occurs, or if there is a known history of previous sensitivity.

**Contaminated Clothing:** The irritating substances emitted by poison ivy group plants will remain on clothing for prolonged periods of time - up to weeks or months, if not washed thoroughly. It may be necessary to wash contaminated clothing separately and more than once before reusing.

**Figure 4.7    Poisonous Plants**

### COMMON POISON IVY (*RHUS RADICANS*)

- Grows as a small plant, vine, and shrub.
- Grows everywhere in the United States except California and parts of adjacent states. Eastern oak leaf poison ivy is one of its varieties.
- Leaves always consist of three glossy leaflets.
- Also known as three-leaf ivy, poison, creeper, climbing sumac, poison oak, markweed, picry, and mercury.



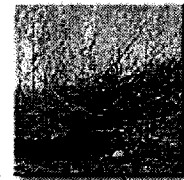
Spring



Summer



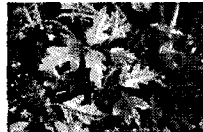
Fall



Winter

### WESTERN POISON OAK (*RHUS DIVERSILOBA*)

- Grows in shrub and sometimes vine form.
- Grows in California and parts of adjacent states.
- Sometimes called poison ivy or years.
- Leaves always consist of three leaflets.



### POISON SUMAC (*RHUS VERNIX*)

- Grows as woody shrub or small tree from 5 to 25 feet tall.
- Grows in most of eastern third of United States.
- Also known as swamp sumac, poison elder, poison ash, poison dogwood, and thunderwood.



#### **4.6.4 Spiders**

Personnel shall be alert to the potential for spider bites. Spiders, such as the Brown Recluse, sometimes establish residence in dark places, stored clothing, and PPE. It is advisable for personnel to inspect clothing and PPE for spiders prior to donning.

Facts and precautions to remember are as follows:

- Spiders are primarily nocturnal, and retreat to dark areas.
- Spiders can be venomous; however, they rarely bite humans. Even so, those that may bite, can cause a painful injury, and in rare cases, hospitalization or death.
- Two types of spiders that are poisonous and can pose a risk to humans are the black widow and brown recluse.
- Sudden light will help to chase spiders to hiding areas and avoid contact with you.
- Use a broom or stick to “sweep” the areas and remove webs prior to entering the area.
- Always wear gloves and utilize Tyvek® if necessary for extra protection.
- Eliminate or shield outdoor lights or indoor lights that attract flying insects, the spider’s food source.
- Seal openings and install screens and door sweeps to prevent spiders from moving indoors.
- Use a vacuum to remove webs, spiders, and egg sacs.
- The use of insecticide sprays is not recommended. These sprays contain chemicals that are also toxic to humans, and if used in a confined area, present a greater exposure hazard. Additionally, insecticides can cross contaminate samples, treatment systems and in some cases, actually cause contamination to be spread into the well and the groundwater source being monitored.

Remember, spiders avoid humans. However, they will bite when they are threatened or disturbed. Avoid contact and prevent bites. If a spider bite is sustained, personnel shall immediately report it to the SSHO.

#### **4.6.5 Flying Insects**

Flying insects such as mosquitoes, wasps, hornets, and bees may be encountered while working at the project site. Mosquito bites can be effectively prevented by the use of insect repellants containing N, N-diethyl-meta-toluamide (DEET). Insect repellant containing DEET shall be available to personnel while working onsite. Additionally, special insecticide preparations, such as Repel Permanone, shall be available for treating worker’s clothing. Commercially prepared ointments for treatment of insect bites and bee stings shall be available onsite. All personnel shall immediately report any bee stings to the SS and the SSHO.

##### **4.6.5.1 Africanized Honey Bees**

Africanized honey bees (AHBs) also referred to as “killer bees”, are the same species as the familiar European honey bees (EHBs) used to produce honey and pollinate crops, but a different subspecies. They have also been referred to as in the media because of their defensive behavior.

AHBs look nearly identical to the honey bees of California. All honey bees not under the care of a beekeeper should be treated as AHBs.

Colonies are defended more vigorously by AHBs than by EHBs. The colonies are easily disturbed, sometimes just by being in close proximity to their habitat. When AHBs sting, many more bees are likely to participate, thus presenting a danger of receiving a high number of stings. This can make them life-threatening, especially to individuals allergic to stings. Once disturbed, AHBs will continue the attack for a long distance.

AHBs colonies are likely to be more common than the EHBs, and they swarm more frequently. They nest in a wide variety of places, including small cavities near the ground such as water meter boxes or overturned flower pots.

To avoid unsettling AHBs, look before disturbing vegetation. Many bees coming and going from a single spot could indicate a nest. If found, do not try to remove them. Contact a professional pest control company to remove the nest.

If stung, get away quickly to the shelter of a car or building, and stay there even if some bees come with you (there are more outside). Once safe, scrape stingers out with a fingernail or credit card to reduce the amount of venom injected, wash with soap and water, and apply an ice pack to relieve swelling. If stings are numerous or the victim is known to be allergic or is having trouble breathing, transport him/her to the designated hospital immediately (**Figure 9.2A** of the APP) .

#### **4.6.6 Snakes**

Snakes could be encountered on the site. Snake venom is complex and includes proteins, some of which have enzymatic activity. The effects produced by venom include neurotoxic effects, with sensory, motor, cardiac, and respiratory difficulties; cytotoxic effects on red blood cells, blood vessels, heart muscle, kidney, and lungs; defects in coagulation; and effects from local release of substances by enzymatic actions. Other noticeable effects of venomous snakebites include swelling, edema, and pain around the bite and the development of ecchymosis (the escape of blood into tissues from ruptured blood vessels).

To minimize the threat of snake bites and insect hazards, all personnel walking through vegetated areas will be made aware of (during training) the potential for encountering snakes and will avoid actions such as turning over logs, *etc.*, that could increase the potential. Additional caution will be exercised around preferred snake habitat. The victim should be kept still and transported to the nearest hospital as soon as possible. First aid consists of applying a

constriction band and washing the area around the wound to remove any unabsorbed venom. No cutting and sucking should be performed.

#### **4.6.7 Ticks and Tick-Borne Diseases**

Heavily vegetated areas of a site may have ticks. It is highly recommended that all personnel wear a minimum of a Tyvek® and latex boot covers when walking through such areas. The ticks will stand out against the light colors. A tick repellent or insect repellent containing DEET is also recommended.

Ticks can transmit several diseases, including Rocky Mountain spotted fever, a disease that occurs in the eastern portion of the United States as well as the western portion, and Lyme disease. Ticks adhere tenaciously to the skin or scalp. There is some evidence that the longer an infected tick remains attached, the greater is the chance that it will transmit disease.

If you have been bitten, place the tick in a jar labeled with the date, location of the bite, and the location acquired. If any symptom appears, such as an expanding red rash, contact a physician immediately.

#### **First Aid**

- Carefully (slowly and gently) remove the tick with tweezers, taking care that all parts are removed.
- With soap and water, thoroughly, but gently, scrub the area from which the tick has been removed, because disease germs may be present on the skin; also wipe the bite area with an antiseptic.

**Lyme Disease:** Lyme disease may cause a number of medical conditions, including arthritis that can be treated if you recognize the symptoms early and see your doctor. Early signs may include a flu-like illness, an expanding skin rash and joint pain. If left untreated, Lyme disease can cause serious nerve and heart problems as well as a disabling type of arthritis.

You are more likely to spot early signs of Lyme disease rather than see the tick or its bite. This is because the tick is so small (about the size of the head of a common pin or a period on this page and a little larger after they fill with blood), you may miss it or signs of a bite. However, it is also easy to miss the early symptoms of Lyme disease.

In its early stage, Lyme disease may be a mild illness with symptoms like the flu. It can include a stiff neck, chills, fever, sore throat, headache, fatigue, and joint pain. But this flu-like illness is usually out of season, commonly happening between May and November when ticks bite.

Most people develop a large, expanding skin rash around the area of the bite. Some people may get more than one rash. The rash may feel hot to the touch and may be painful. Rashes vary in size, shape, and color, but often look like a red ring with a clear center. The outer edges expand

in size. It's easy to miss the rash and the connection between the rash and the tick bite. The rash develops from three days to as long as a month after the tick bite. Almost one third of those with Lyme disease never get the rash.

Joint or muscle pain may be another early sign of Lyme disease. These aches and pains may be easy to confuse with the pain that comes from other types of arthritis. However, unlike many other types of arthritis, this pain seems to move or travel from joint to joint. In later stages, Lyme disease may be confused with other medical problems. These problems can develop months to years after the first tick bite.

Early treatment of Lyme disease symptoms with antibiotics can prevent the more serious medical problems of later stages. If you suspect that you have symptoms of Lyme disease, report it to your SSHO and/or SS and seek medical attention.

Lyme disease can cause problems with the nervous system that look like other diseases. These include symptoms of stiff neck, severe headache, and fatigue usually linked to meningitis. They may also include pain and drooping of the muscles on the face, called Bell's Palsy. Lyme disease can also mimic symptoms of multiple sclerosis or other types of paralysis.

Lyme disease can also cause serious but reversible heart problems, such as irregular heartbeat. Finally, Lyme disease can result in a disabling, chronic type of arthritis that most often affects the knees. Treatment is more difficult and less successful in later stages. Researchers think these more serious problems may be linked to how the body's defense or immune system responds to the infection.

#### **4.6.8 Chiggers**

Chiggers may be a problem while working at project locations. Chiggers, also known as "red-bugs" or "harvest mites," are the immature stages of a tiny red mite. They inhabit areas of tall grass, associated with low, wet spots, ponds and stream banks, wild berry patches, and forest underbrush. The larvae attach themselves to the clothing of people or to the fur of passing animals. Before settling down to feed, chiggers move to a constriction, such as sock tops, waistbands, or armpits. Feeding chiggers inject a salivary fluid, which dissolves the host's cells, and then they suck up the liquefied tissue. Within a few hours, small, reddish, intensely itching welts appear. These bites may continue to itch for several days up to two weeks after the chigger is dislodged. Following are suggestions that should provide some protection from chiggers:

- Stay out of areas where chiggers are likely to be present including wood lots, pastures, roadside ditches, or other areas with tall grasses and weeds. Chiggers are especially common in moist low-lying areas.
- Wear loose-fitting clothing (if possible) when working outdoors. Vehicles should be frequently vacuumed to reduce the number of chiggers that may have been deposited.



- Apply a repellent containing DEET to shoes, socks, and trousers before entering chigger-infested areas. Caution: some individuals may be sensitive to DEET – always read and follow label directions.
- Immediately after possible exposure to chiggers, take a bath, thoroughly scrubbing the body with hot soapy water. This will kill or dislodge many of the chiggers. The clothes that were worn when the bite(s) occurred should be placed in a plastic bag for temporary storage until they can be laundered.

When bites begin to itch, one course of treatment is to apply rubbing alcohol, followed by one of the nonprescription local anesthetics. A baking soda paste, calamine lotion, or product such as “After-Bite” or “Chigaid” also will help reduce discomfort. Avoid scratching bites since this only increases irritation and may lead to a secondary infection of the bite.

#### **4.6.9 West Nile Virus and West Nile Encephalitis**

The following sections discuss West Nile Virus/West Nile Encephalitis. Additional information on West Nile Virus can be found at the following Internet sites:

- <http://chppm-www.apgea.army.mil/ento/FACTS/WNVFact9-01.pdf>
- <http://chppm-www.apgea.army.mil/westnilevirus/>
- <http://chppm-www.apgea.army.mil/WESTNILEVIRUS/>
- <http://www.cdc.gov/ncidod/dvbid/westnile/>
- <http://www.cdc.gov/NCIDOD/DVBID/WESTNILE/>
- <http://www.geis.ha.osd.mil/>

##### **4.6.9.1 Background Information on West Nile Virus and West Nile Encephalitis**

West Nile Virus/West Nile Encephalitis is rapidly becoming a significant health issue in the United States. West Nile Virus was first identified in the New York area in 1999, and is closely related to the St. Louis Encephalitis Virus, which is routinely found in the United States. Both of these viruses belong to the genus *Flavivirus* and causes diseases that are similar to one another. “Encephalitis” means an inflammation of the brain and it can be caused by viral and bacterial infections. West Nile Encephalitis can be a serious or even fatal illness.

##### **4.6.9.2 Transmission of the Disease**

West Nile Encephalitis is a viral infection of the brain transmitted through the bite of a mosquito, which has previously fed on birds and/or horses that were infected with West Nile Virus. Dead birds in an area may mean that West Nile Virus is circulating between the birds and the mosquitoes in that area. West Nile Virus is not transmitted from one person to another. Human illness from West Nile Virus is relatively rare, even in areas where the virus has been reported.

#### 4.6.9.3 Symptoms of Exposure

Most people who become infected with West Nile Virus will have either no symptoms or only mild ones. Symptoms of West Nile Encephalitis include high fever, headache, confusion, muscle aches and weakness, seizures, or paralysis. At its most serious, the infection can result in coma, permanent neurological damage, and death. Symptoms usually occur 5 to 15 days following the bite of an infected mosquito. Because West Nile Encephalitis is a viral infection, antibiotics are not effective and there is no specific treatment available other than general support therapy.

#### 4.6.9.4 Protective Measures at Projects

There is no vaccine to protect humans against West Nile Virus. Individuals at project sites can reduce their risk from being infected with West Nile Virus by taking the following actions to protect against mosquito bites:

- Review the hazards of West Nile Virus periodically in morning safety meetings.
- Increase protective measures when working at dawn, dusk, and in the early evening.
- Reduce the area of exposed skin when working outdoors. Long-sleeved shirts with sleeves rolled down are recommended. Understand that mosquitoes may bite through thin clothing, so personnel should evaluate the actual Level D clothing worn, e.g., heavy long sleeve work shirts and heavy jeans may be indicated. Also, the risk or threat of mosquito bites is reduced for those activities that require the use of disposable coveralls.
- For activities where only Level D PPE is specified, consider using disposable coveralls when working in wooded, highly vegetated, or swampy areas.
- Use an insect repellent containing approximately 25% DEET. DEET in concentrations greater than 25% provides no additional protection but repel insects longer. However, at some point there is no direct correlation between concentration and repellency. For example, 50% DEET provides about four hours of protection against mosquitoes, but increasing the concentration to 100% provides only one additional hour of protection. Use the repellent according to the manufacturer's directions provided on the container. Use just enough repellent to cover exposed skin and clothing. Do not treat unexposed skin. Frequent re-application is unnecessary for effectiveness. Avoid prolonged and excessive use of DEET.
- When additional protection against mosquitoes is necessary, commercially prepared "clothing and gear" insect repellants containing 0.5 percent permethrin may be used. These repellants, such as Repel Permanone™ are available in the sporting goods departments at major retailers. Clothing and gear insect repellants are not for use on skin. Use the repellent according to the manufacturer's recommendations provided on the container.

- After returning from outdoor field activities, wash treated skin with soap and water.
- Personnel should report flu-like symptoms to the SS or SSHO.

DEET is considered generally safe for site personnel. You should avoid applying it to open wounds and irritated skin as it may further irritate the skin or cause discomfort.

Sweating, perspiration and getting wet may wash away the repellent and may require that DEET containing repellent be re-applied.

To remove the breeding places on a project, the following precautions will be followed as practical:

- Cut tall grass and weeds,
- Drain accumulated water in such items as drums, buckets, pools and plastic containers,
- Repair holes in door and window screens,
- Eliminate stagnate water puddles as practical, and
- Limit outdoor activities at dawn, dusk and early evening, when mosquitoes are most active, as practical.

## 5.0 WORK AND SUPPORT AREAS

The purpose of site control is to minimize chemical exposures to workers, protect the public from hazards due to site activities, and prevent vandalism. The work areas that pose chemical and physical hazards to personnel may be regarded as regulated or restricted. To prevent both exposures to unprotected personnel and migration of contamination due to tracking by personnel or equipment, work areas known to contain contamination will be clearly identified.

Shaw will designate work zones at the project as suggested in Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (NIOSH et al., 1985). Regulated work areas are divided into the following three zones:

- Support Zone (SZ),
- Contamination Reduction Zone (CRZ),
- EZ.

### 5.1 SUPPORT ZONE

The uncontaminated SZ or clean zone will be located upwind, in an area outside the EZ and CRZ and within the geographic perimeters of the site. The area is used for material staging, vehicle parking, office facilities, sanitation facilities, and receipt of deliveries. Personnel entering this zone may include delivery personnel, visitors, security guards, etc., who will not necessarily be permitted in the EZ. All personnel arriving in the SZ will, upon arrival, report to the SSSH and sign the site visitor log. Eating, drinking, and smoking will only be allowed in this area.

### 5.2 CONTAMINATION REDUCTION ZONE

Personnel and equipment decontamination will be performed in the CRZ that is adjacent to the EZ. All personnel entering or leaving the EZ will pass through this area to prevent any cross-contamination and for the purpose of accountability. Personal protective outer garments and respiratory protection will be removed in the CRZ and properly labeled. All water generated from equipment and personal decontamination will be contained onsite and disposed of at an applicable Navy approved offsite disposal facility.

### 5.3 EXCLUSION ZONE

The EZ will be the area around the excavation activities and the waste staging areas. These areas have the highest potential for exposure to contamination by contact, ingestion, or inhalation. All employees will use proper PPE when working in these areas. The location of the EZ will be identified by fencing or other appropriate means primarily around the excavation / drilling and waste storage areas. A daily entry log will be maintained recording the time of entry and exit from the EZ for each person. Unauthorized personnel will not be allowed in any EZ.

## 6.0 PERSONAL PROTECTIVE EQUIPMENT

This section describes the PPE required for each type of task for this project. All personnel must wear appropriate protective equipment when activities involve exposure to hazards that cannot be adequately or feasibly controlled by engineering or administrative controls.

### 6.1 SITE-SPECIFIC PERSONAL PROTECTIVE EQUIPMENT PROGRAM

The primary objective of the PPE program is to ensure employee protection and to prevent employee exposure to site contaminants during site operations. The SSHO will be responsible for monitoring all aspects of the PPE program. This includes donning and doffing, temperature-related stress monitoring, inspection, and decontamination. The SSHO, in consultation with the HSM, will direct changes in PPE based on changing conditions. This SSHP will serve as written certification that the workplace was evaluated concerning PPE requirements. Shaw Procedure No. HS600, "*Personal Protective Equipment*" (2010), provides additional requirements for the use of PPE.

Hard Hats shall be worn by all operators at all times while operating machinery. A stock of common PPE required for this site will be provided for use by visitors where appropriate.

### 6.2 WRITTEN CERTIFICATIONS FOR PERSONAL PROTECTIVE EQUIPMENT

During the site safety orientation training, the SSHO will address the PPE requirements, including:

- When PPE is required.
- The proper PPE for the job tasks.
- How to properly don, doff, adjust, and wear PPE.
- The limitations of the PPE.
- The care, inspection, testing, maintenance, useful life, and disposal of PPE.

The SS or SSHO will discuss PPE in the daily safety meeting. The PPE use and selection will be documented on the daily JSA Form and Checklist (**Appendix E**). The SS or SSHO will perform PPE re-training of project personnel, as necessary.

### 6.3 RESPIRATORY PROTECTION

Respiratory protection equipment shall be NIOSH-approved, and respirator use will conform to ANSI Z88.2 and OSHA 29 CFR §1910.134 requirements. Although respiratory protection is not anticipated for this project; Shaw Procedure No HS601, "*Respiratory Protection Program*" (2010) will be followed if the scope changes.

## 6.4 LEVELS OF PROTECTION

The following is a description of the PPE that may be required during various phases of the project. The United States Environmental Protection Agency (USEPA) terminology for levels of PPE is used: Levels A, B, C, and D. Level A, Level B, and Level C protection are not anticipated for this project.

## 6.5 PERSONAL PROTECTION LEVELS DESCRIPTIONS

This section lists the minimum requirements for each protection level. Modification to these requirements may have been noted above. SZ activities will be completed in Level D PPE. EZ activities are expected to be completed in modified Level D protective equipment.

### 6.5.1 Level A Personal Protective Equipment

Level A protection provides the highest degree of respiratory (supplied air) and dermal protection. Level A protection use is not anticipated for this project.

### 6.5.2 Level B Personal Protective Equipment

Level B protection provides the next highest degree of respiratory and dermal protection. Level B protection use is not anticipated for this project.

### 6.5.3 Level C Personal Protective Equipment

Level C protection provides the next highest degree of respiratory and dermal protection. Level C protection use is not anticipated for this project.

### 6.5.4 Level D – Modified Protection

Additional PPE is required for specific tasks. Level D – modified protection generally consists of the following PPE:

- Safety glasses with side shields meeting ANSI Z87.1 specifications.
- Work clothing as prescribed by weather.
- Safety work boots with composite toe guards that meet ANSI Z41 specifications for MEC operations. Composite and steel toed safety boots are allowable for other site operations.
- Nitrile surgical gloves (inner).
- Nitrile gloves (outer).
- Hearing protection (if necessary or required).
- Hard hat meeting ANSI Z89.1 specifications.
- High visibility vests (when working near mobile construction equipment or vehicular traffic).
- Tyvek® coveralls with hoods, elastic wrists, and ankles (as necessary).

- Face shield (when pressure washing).
- Vinyl Raingear (when pressure washing).
- Shin/Metatarsal Protection (when pressure washing).
- Inherently buoyant Type III or Type V work vest, or better United States Coast Guard (USCG) approved personal flotation device (PFD) whenever a drowning hazard exists.
- Work gloves, such as leather, cotton, or other material that provides cut/abrasion resistance (as necessary).

### 6.5.5 Level D Protection

Level D protection is the minimum level of protection that will be used at the site. Level D PPE shall, at a minimum, consist of the following:

- Work clothing as prescribed by weather.
- Hardhat meeting ANSI Z89.1 specifications (when working near overhead hazards, during construction activity, or in posted areas).
- Safety glasses with side shields meeting ANSI Z87.1 specifications.
- Safety-toed boots meeting ANSI Z41 specifications.
- Hearing protection (if necessary or required).
- Splash shield (if necessary).
- Work gloves such as leather, cotton, or other material that provides cut/abrasion resistance (as necessary).

## 6.6 ACTIVITY-SPECIFIC LEVELS OF PROTECTION

The required level of personal protection is specific to the activity being conducted. Table 6.6, "Anticipated Protection Levels," outlines the proper PPE levels for project tasks.

**Table 6.6**      *Anticipated Protection Levels*

Task	Initial PPE Level	Upgrade PPE Level	Skin Protection	Respiratory Protection	Other PPE
• Mobilization and site preparation activities	Level D	None	Leather work gloves	None	Hard hat, steel-toed boots, safety glasses, hearing protection (>85 dBA), warning vests, and leather work gloves.
• Erosion Control	Level D	None	Leather work gloves	None	
• Site Restoration	Level D	None	Leather work gloves	None	
• Soil Excavation	Level D	None	Leather work gloves	None	
• Site Survey	Level D	None	Leather work gloves	None	
• Clearing & Grubbing	Level D	None	Leather work gloves	None	

## ***7.0 DECONTAMINATION PROCEDURES***

Decontamination of equipment and personnel will be performed to limit the migration of contaminants offsite and between work zones. Decontamination will generally occur at the edge of the EZ. Additional, temporary decontamination stations may be established as project activities and needs warrant. This section describes the necessary procedures for personnel and equipment decontamination. In general, everything that enters the EZ at the site shall either be decontaminated or properly discarded upon exit from the EZ. All personnel shall enter and exit the EZ through a CRZ.

### **7.1 PERSONNEL DECONTAMINATION**

Personnel decontamination consists of discarding disposable PPE, cleaning reusable PPE, and washing hands and face.

#### ***7.1.1 Decontamination Procedures for Modified Level D Personal Protective Equipment***

In general, the personnel decontamination procedure for activities conducted in Modified Level D consists of personnel discarding disposable PPE, washing reusable PPE, and washing hands and face. Disposable wet napkins may be used in the field to wash hands and face until personnel have access to potable water.

##### **7.1.1.1 Suspected Contamination**

Decontamination procedures will ensure that material which workers may have contacted in the EZ does not result in personal exposure and is not spread to clean areas of the site. This sequence describes the general decontamination procedures for Level D-Modified. The specific stages will vary depending on the site, the task, the protection level, *etc.* Dry decontamination may be used if approved by the HSM, SS, and SSHO who will ensure that the decontamination procedures are adequate.

##### **7.1.1.2 Modified Level D decontamination:**

- Go to end of EZ,
- Wash outer boots and stage to let dry,
- Remove and discard latex booties,
- Remove outer gloves and discard,
- Cross into CRZ,
- Remove protective coverall,
- Remove inner sample gloves and discard,
- Wash face and hands.



## 7.2 PROCEDURES FOR EQUIPMENT AND VEHICLE DECONTAMINATION

Equipment and vehicle decontamination procedures consist of cleaning with a low-volume, high-pressure (or steam) washer. Small equipment may be pressure-washed or scrubbed/wiped with soap and water. All wash water will be collected for treatment or disposal. All equipment requiring maintenance or repair will be decontaminated prior to servicing. Reusable sampling equipment and any other tools used for intrusive work will be decontaminated between sampling locations.

Equipment decontamination will be conducted at an established decontamination station. The procedure for decontaminating large equipment is as follows:

- Scrape off excess solids, including mud.
- High-pressure wash all outside surfaces.
- Vacuum and wipe down interior surfaces (if applicable).

At the conclusion of work at the project, all equipment shall be thoroughly cleaned using the method previously described. The SSHO or SS (or designee) will inspect all equipment leaving the site for adequacy of decontamination (visually clean unless otherwise specified).

## 7.3 DECONTAMINATION EQUIPMENT AND SUPPLIES

Prior to excavation activities, a lay down pad will be constructed for equipment storage and will be placed near the office trailer, if needed. Additionally, Shaw will construct and utilize a temporary decontamination pad. Equipment will be decontaminated before leaving the site. A visual inspection of the frame and tires of all vehicles and equipment leaving an EZ will be completed. In order for a vehicle or equipment to pass inspection, it must be in a broom-clean condition and free of loose dirt or sludge material on tailgates, axles, wheels, buckets, *etc.* A pressure washer will be onsite so that any vehicles or equipment can be pressure washed if necessary.

Plastic sheeting will be placed to minimize contamination transport and the decontamination pads may be moved around the site as necessary to minimize the potential for contamination migration.

Decontamination equipment and supplies consist of, but are not limited to, the following:

- Potable water,
- Washtubs,
- Non-phosphate detergent, such as Simple Green® or Alconox®,
- Brushes, hand sprayers,
- Plastic sheeting,

- 5-gallon buckets with lids,
- Garbage bags,
- 55-gallon drums or similar container for collection of decontamination fluids,
- Labels or paint sticks for marking contents of containers.

#### **7.4 PROCEDURES FOR EMERGENCY DECONTAMINATION**

In an emergency, the primary concern is to prevent the loss of life or personal injury. If immediate medical treatment is required to save a life, decontamination should be delayed until the victim is stabilized. Decontamination should be performed if it can be done without interfering with essential life-saving techniques or first aid. If a worker has been exposed to corrosive materials, decontamination must be performed immediately. If an emergency due to a heat-related illness develops, protective clothing should be removed from the victim as soon as possible to reduce further stress. During an emergency, provisions must be made for protecting rescue, first aid, or medical personnel from hazardous materials and for disposing contaminated clothing and equipment. In the event that corrosive materials, such as battery acid, gets in the eyes, first aid personnel should begin to administer a 15-minute eye irrigation with water while Emergency Medical Service (EMS) personnel are responding to the incident. Similarly, if corrosive material is on an injured employee's skin, first aid personnel should flush the material off of the skin in conjunction with other first aid procedures being administered. EMS personnel should always be summoned as quickly as possible so as not to delay professional medical treatment.

If decontamination can be performed, wash, rinse, and/or remove protective clothing and equipment.

If decontamination cannot be performed, complete the following actions:

- Alert medical personnel to potential contamination and instruct them about specific decontamination procedures, if necessary.
- Provide site personnel familiar with the incident at the medical facility.

#### **7.5 DISPOSAL**

All decontamination liquids and disposable clothing will be treated as contaminated waste unless determined otherwise by accepted testing methods. Waste water and materials will be disposed according to state and federal regulation.

## ***8.0 AIR MONITORING***

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Air monitoring is not anticipated based on the current SOW.

### **8.1 INSTRUMENTATION**

The following is a description of the air monitoring equipment that may be used at this site should air monitoring be required .

#### ***8.1.1 Real-Time Aerosol Monitor***

The personal data-logging real-time aerosol monitor or Mini-RAM is a high sensitivity photometric monitor whose light scattering sensing configuration has been optimized for the measurement of the respirable fraction of airborne dust, smoke, fumes, and mists. It will be used for real-time monitoring of airborne dust concentrations.

Real-time monitoring for dust will be performed in the work areas where the potential for the highest concentrations of lead are expected during activities that may have the potential for creating a dust hazard, such as clearing, excavation, loading and unloading trucks, and stockpiling. A Mini-RAM will be used to monitor for dust in the work area and on the downwind boundary of the site.

##### **8.1.1.1 Calibration Methods/Frequencies**

The Mini-RAM is calibrated by the Shaw Electronics Group in Findlay, Ohio. There is no practical procedure for field calibration of the Mini-RAM. Before each day's use, the zero will be checked against a filtered air sample according to the manufacturer's recommendations. A log will be kept detailing date, time, and name of person performing the check.

##### **8.1.1.2 Preventative Maintenance**

The Shaw Electronics Group in Findlay, Ohio maintains the Mini-RAMs, including replacement of filters and desiccant; battery replacement; and cleaning of optical detection assemblies.

#### ***8.1.2 Integrated Air Sampling***

Integrated air sampling for personal exposure characterization using OSHA or NIOSH methods may be performed at the discretion of the Program HSM.

### **8.2 SITE-SPECIFIC ACTION LEVELS**

During intrusive work, direct reading air monitoring will be ongoing to determine EZ workers' exposures. Calculations based onsite-specific contaminant concentrations and historical monitoring data under similar field conditions indicate adherence to these ALs will keep site workers' Air Monitoring Recordkeeping.

The SSHO will ensure that all air-monitoring data are logged. Data will include instrument used, wind direction, work process, *etc.*

### **8.3 AIR MONITORING RESULTS**

Air monitoring results will be available for workers' inspection and will be discussed during morning safety meetings. All air monitoring activities will be documented and provided in the completion report. Records will be archived in the project files.

## ***9.0 STANDARD OPERATING SAFETY PROCEDURES, ENGINEERING CONTROLS, AND WORK PRACTICES***

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This section briefly outlines the engineering controls and general acceptable work practices that will be followed by all site personnel to eliminate or reduce the risk of exposure to the anticipated site hazards. These controls are presented as a guide for site personnel and do not cover all compliance issues. The SS and SSHO shall ensure full compliance with applicable regulatory requirements.

### **9.1 ENGINEERING CONTROLS**

Hazards shall be eliminated when possible and feasible. If a hazard cannot be eliminated, then the use of engineering controls is the preferred method of control.

### **9.2 GENERAL WORK RULES**

While all the procedures outlined in this SSHP are required, the following list presents general work rules that must be strictly enforced by the SS:

- At least one copy of this plan will be available at the project site, in a location readily available to all personnel, including visitors.
- Posted danger and warning signs indicating special hazards are to be obeyed at all times.
- Changes in work practices or work rules will be implemented only after a written safety plan amendment has been prepared and authorized. Changes will be communicated to all site personnel.
- Personnel are not allowed onsite without the prior knowledge and consent of the SS.
- Unauthorized removal of materials from the project is prohibited.
- Administrative hazard control will be practiced for all site areas by restricting entrance to EZs to essential personnel who qualified by training and physical exam.
- Loose or torn clothing ties or long hair is not permitted on or near equipment with moving parts.
- Cosmetics will not be applied within the exclusion or contamination reduction zones.
- Possession of controlled substances and prohibited items, such as alcohol, illicit drugs, firearms, and weapons while working onsite is strictly prohibited.
- Anyone reporting to work under the influence of alcohol and/or illegal drugs will be subject to disciplinary action. Any employee under a physician's care and/or taking prescribed medication must notify the SSHO.

- Smoking will not be permitted in any area where hazardous chemicals or materials are in use or stored. Smoking is only permitted in designated areas.
- Employees will generally be responsible for cleaning and maintaining the protective equipment issued to them. Any noted defects in protective equipment will be reported immediately to the SSHO. Damaged PPE shall be immediately repaired or replaced, as appropriate.
- Personnel will be aware of prevailing weather conditions. Personnel shall routinely note the wind direction and remain upwind whenever possible during onsite activities.
- Legible and understandable precautionary labels that comply with the hazard communication standard will be affixed prominently to all containers of contaminated scrap, waste, debris, and clothing.
- Practice contamination avoidance. Never sit or kneel on potential contaminated ground, never lay equipment on the ground, avoid obvious sources of contamination such as puddles, and avoid unnecessary contact with onsite objects.
- Never climb over or under refuse or debris.
- Hands and face should be thoroughly washed before eating, drinking, etc.
- No food or beverages will be present or consumed in the EZ or CRZ.
- Ensure that no one is required to lift more than 60 pounds.
- Be alert to any unusual changes in your own condition; never ignore warning signs. Notify the SSHO about suspected exposures or accidents.
- Personnel must report all injuries and/or illnesses to the SS. This includes minor injuries and near misses.
- An emergency eyewash unit shall be located immediately adjacent to employees who handle hazardous or corrosive materials, such as battery acid, *etc.* All operations involving the potential for eye injury, splash, *etc.*, shall have eyewash units locally available and capable of delivering at least 0.4 gallons per minute for at least 15 minutes.
- A vehicle will be readily available for emergency use. All personnel at the site will be familiar with the most direct route to the nearest hospital.
- If onsite activities continue later than dusk, adequate lighting shall be provided.
- Permits are required for intrusive activities, entering excavations greater than four feet deep, confined space entry, line breaking, and hot work.
- Operations involving the potential for fire hazards shall be conducted in a manner as to minimize the risk of fire.
- Overhead and underground utility hazards shall be identified and/or located prior to conducting operations.
- Field activities shall be suspended during severe weather such as typhoons, thunderstorms, lightning, and earthquakes. If work is stopped due to

thunderstorms and lightning, work will not continue until 30 minutes after the last lightning strike is observed or thunder clap is heard.

- All crew personnel onsite will use the buddy system (working in pairs or teams) Maintain line-of-sight with a worker during activities that could involve potentially hazardous substances.
- If protective equipment or noise levels impair communications, then prearranged hand signals will be used for communication. Visual contact will be maintained between crew members at all times, and crew members must observe each other for signs of toxic exposure. Indication of adverse effects include, but are not limited to:
  - Changes in complexion and skin coloration.
  - Changes in coordination.
  - Changes in demeanor.
  - Excessive salivation and papillary response.
  - Changes in speech pattern.
- Employees will inform their partners or fellow team members of non-visible effects of overexposure to toxic materials. The symptoms of such overexposure may include:
  - Headaches.
  - Dizziness.
  - Nausea.
  - Blurred vision.
  - Cramps.
  - Irritation of eyes, skin, or respiratory tract.
  - Personnel shall thoroughly wash their hands and face before eating, smoking, or drinking.

### 9.3 BUDDY SYSTEM

The “buddy system” will be used at all times while working onsite. This requires that personnel maintain visual, voice, cellular telephone, or radio communication.

#### 9.3.1 *Lone Worker Procedure*

Occasionally, only one worker may be present at the project to perform routine operations such as performing paperwork in the office. During these routine operations, there will be no “buddy” present onsite. Even though there will be no buddy present onsite at these times, communications must still be maintained. The lone field worker shall carry a cellular telephone or two-way radio on their person, at all times, while working at the project site (a landline telephone will suffice if the worker is in an office). Arrangements shall be made by the lone field workers, with at least one other person (monitor), to affect hourly communications. This hourly communication shall convey the following information:

- Present location.
- Present status.
- Anticipated activities and location of anticipated activities (include routes of expected travel).
- Estimated duration of anticipated activities.
- Identify other anticipated activities, projected travel routes, and activity locations if the lone field worker will complete the initial task prior to making the next scheduled contact with the other employee.

The lone field worker should initiate the hourly communication to the monitor at a pre-designated time (for example, the top of the hour). If the monitor does not receive the status call at the pre-designated time, then the monitor shall try to establish communications with the lone employee. If the lone field employee answers, then the update shall be made and the schedule of calls shall continue. If the lone field employee does not answer, the monitor shall try again in 5 minutes. If contact is not made on the second try, then the monitor shall notify the local emergency services, such as police or security force. All information provided from the last communication (see above) shall be provided to the emergency services. Additionally, the telephone number of the monitor (or other means of contact) shall be provided to the emergency services.

Upon mobilization to the project, the SS shall verify that emergency communications are established for all activities.

**Important:** This procedure applies to routine tasks only. Non-routine tasks require the buddy system to be in effect.



## ***10.0 EMERGENCY RESPONSE***

### **10.1 EMERGENCY RESPONSE PLANS**

If an emergency occurs, employees will be evacuated from the danger area and professional emergency responders such as firefighters or EMS will be summoned. Therefore, this emergency action plan has been prepared pursuant to Title 29 CFR 1910.38. The SSHO may be contacted for further information or explanation of duties under the plan.

### **10.2 RESPONSIBILITIES**

Prior to engaging in construction/remediation activities at the site, the SS will plan for possible emergencies such as medical emergencies, fire, and hazardous weather conditions. The SS is responsible for establishing emergency communication with potential emergency response organizations.

The primary emergency coordinator will be the SSHO. If an emergency occurs and the SSHO is not onsite, the SS will serve as the emergency coordinator until he arrives. Immediately after being notified of an emergency incident, the emergency coordinator or his designee will evaluate the situation to determine the appropriate action.

The onsite emergency coordinator is responsible for implementing and directing the emergency procedures. Specific duties are as follows:

- Identify the source and character of the incident. Assess possible hazards to human health or the environment that may result directly from the problem or its control.
- Discontinue operations in the vicinity of the incident if necessary.
- Signal the evacuation of the work area if necessary. Both the SS and the SSHO have the authority to order the evacuation of the work area.
- Notify the Client Representative and local Emergency Response Teams if their help is necessary to control the incident. **Table 9.2** of the APP provides telephone numbers for emergency assistance.
- If the incident may threaten human health or the environment outside of the site, notify the local Police Department and the Office of Emergency Management.

### **10.3 EVACUATION SIGNALS AND ALARM SYSTEM**

If site evacuation is required, a continuous, uninterrupted air horn or vehicle horn (backup) will be sounded for approximately 10 seconds. Voice and personal contact may also be used to initiate evacuation if practical.

Primary communication with emergency responders will be accomplished using commercial telephone services.

#### **10.4 EVACUATION ROUTES AND PROCEDURES**

Evacuation routes will be posted in each outside work area. Signs inside trailers will be posted on walls or other structural elements of a trailer. During an emergency, the evacuation routes noted on the map will be followed. If conditions such as wind direction or physical hazards do not allow access to the prescribed evacuation routes, the safest route available will be used. As work progresses, the emergency coordinator may alter these assembly areas depending onsite and weather conditions. The site-specific evacuation procedures will be discussed in detail at the daily safety tailgate meeting and workers will be given the opportunity to practice the evacuation drill which will be critiqued for lessons learned.

In the event evacuation is necessary, the following actions will be taken:

- The emergency signal will be activated.
- No further entry of visitors, contractors, or trucks will be permitted. Vehicle traffic within the site will cease in order to allow safe exit of personnel and movement of emergency equipment.
- All project machinery and processes will be shut down if safe to do so.
- All onsite personnel, visitors, and contractors in the SZ will evacuate to the designated muster point location.
- The emergency coordinator will assign a worker to direct emergency responders to the site of the emergency.
- Re-entry into the site will be made only after clearance is given by the emergency coordinator. At his direction, a signal or other notification will be given for re-entry into the facility.

#### **10.5 PROCEDURES TO ACCOUNT FOR SITE WORKERS AFTER EVACUATION**

- The emergency coordinator will maintain possession of the EZ log in sheet and tailgate safety meeting form containing onsite workers' names.
- No one is to leave the site without notifying the emergency coordinator.
- All persons will be accounted for by their immediate crew leaders (*e.g.*, foreman).
- Upon completion of the head count, the crew leader will provide the information to the emergency coordinator.

A final tally of persons will be made by the emergency coordinator or designee. No attempt to find persons not accounted for will involve endangering lives of Shaw or other employees by re-entry into emergency areas.

In all questions of accountability, immediate crew leaders will be held responsible for those persons reporting to them. Visitors will be the responsibility of those employees they are seeing. Contractors and truck drivers are the responsibility of the CFM.

## **10.6 MEDICAL EMERGENCIES**

At least two personnel, trained and certified in adult first aid and cardiopulmonary resuscitation (CPR) will be onsite at all times work is being performed.

For purposes of this section, personal injuries and illnesses are roughly categorized as life threatening or non life threatening. Guidance is presented below on handling both.

### ***10.6.1 Life-Threatening Injury or illness***

If an apparent life-threatening conditions exists, such as severe lacerations, profuse bleeding, severe burns, loss of consciousness, heat stroke, heart attack, or respiratory failure or severe allergic reaction, the emergency coordinator will:

- Immediately call local EMS. The telephone number is presented in **Table 9.2** of the APP.
- Administer (or cause to have administered) first aid or cardiopulmonary resuscitation if appropriate.
- Appoint a crew member to meet and guide the EMS to the injured worker.
- Have the injured worker decontaminated if necessary.
- Notify Shaw's consulting occupational medical service, which will become Shaw's liaison with the treating medical facility. (See **Table 9.2** of the APP for telephone number.)

The EMS will then transport the injured worker to their associated hospital emergency room.

### ***10.6.2 Non Life-Threatening Injury or illness***

If the injury is not life threatening, the emergency coordinator will:

- Direct the injured person through decontamination procedures (see Section 10.6) if needed.
- Administer (or cause to have administered) onsite first aid if appropriate.
- If professional medical care is deemed appropriate, Shaw's consulting occupational medical service will be contacted for advice and to serve as Shaw's liaison with the treating medical facility.

- The injured person will be transported by his or her supervisor to the nearest occupational medical facility that has been approved by Shaw's consulting occupational medical professionals. The site route map to this facility is shown on **Figure 9.2B** of the APP.

### ***10.6.3 Reporting, Investigation and Review***

All injuries, no matter how small, will be reported to the SS or SSHO. All occupational injuries or illnesses must be reported, investigated, and reviewed in accordance with Shaw Procedure No. HS020 "*Accident Reporting, Investigation, and Review*" (2010).

## **10.7 EMERGENCY DECONTAMINATION**

The decision to decontaminate a victim prior to evacuation is based on the type and severity of the illness or injury and the nature of the contaminant. Decontamination will be performed if warranted, if it does not interfere with essential treatment, and if doing so does not endanger the life of the injured person or otherwise aggravate the injury. Personnel will not enter the area to attempt a rescue if their own lives would be threatened.

If decontamination must be delayed, observe the following procedures:

- Wrap the victim in blankets or plastic to reduce contamination of other personnel.
- Alert emergency and off-site medical personnel to potential contamination; instruct them about specific decontamination procedures.
- Send site personnel familiar with the incident and chemical safety information, with the affected person, to the treating medical facility.

## **10.8 FIRE EMERGENCIES**

Shaw personnel and subcontractors are not trained professional firefighters. Therefore, if there is any doubt that a fire can be quickly contained and extinguished, personnel will notify the emergency coordinator by radio and vacate the structure or area. The emergency coordinator will immediately notify the local Fire Department.

The following procedures will be used in the event of a fire:

- Anyone who sees a fire will notify the SSHO, who will activate the emergency notifications and contact the Base Fire Department.
- When the emergency notification is made, workers will disconnect potentially affected electrical equipment, if possible.
- Workers will evacuate as described in Sections 10.2, 10.3, and 10.4.
- If a small fire is extinguished by a site worker, the emergency coordinator will be notified, and the incident will be investigated.

## **10.9 ADVERSE WEATHER CONDITIONS/NATURAL DISASTERS**

Adverse weather such as thunder and lightning storms, hail, dust storms, heavy rains, high winds, and tornados can increase the risk of injury from slip, trip and fall hazards, the release of hazardous materials to the environment, structure failure, fires and other hazards.

The best protection against most severe weather episodes and natural disasters is to avoid them. The emergency coordinator will be responsible for assessing hazardous weather conditions and notifying personnel of specific contingency measures. Operations will not be started or continued when the hazardous weather conditions are present such as lightning.

The emergency coordinator will determine when it is necessary to shut down project operations to prevent damage, evacuate personnel to off-site locations, and will coordinate efforts with fire, police and other agencies.

The Contingency Plan for severe weather for this project is presented in **Section 9.21** of the APP.

## *11.0 TRAINING REQUIREMENTS*

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Refer to **Section 6.0** of the APP.

## *12.0 MEDICAL SURVEILLANCE PROGRAM*

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All Shaw personnel participate in a medical and health monitoring program. This program is initiated when the employee starts work with a complete physical and medical history and is continued on a regular basis. A listing of Shaw's worker medical profile is shown below. This program was developed in conjunction with a consultant toxicologist and Shaw's occupational health physician. Other medical consultants are retained when additional expertise is required.

All field personnel performing activities in a designated EZ or CRZ shall within the past 12 months, or as dictated by Shaw's medical surveillance program, have completed a comprehensive medical examination. The periodic medical includes the following elements:

- Medical and occupational history questionnaire,
- Physical examination,
- Complete blood count, with differential,
- Liver enzyme profile,
- Chest x-ray, once every three years, for non-asbestos workers,
- Pulmonary function test,
- Audiogram,
- Electrocardiogram for persons older than 35 years of age, or if indicated during the physical examination,
- Visual acuity, and
- Follow-up examinations, at the discretion of the examining physician or the corporate medical director.

The medical surveillance program meets the requirements of the OSHA Standard 29 CFR 1910.120/1926.65(f).

The HSM will be immediately notified of any suspected exposures to hazardous materials/wastes.

## ***13.0 BLOOD-BORNE PATHOGENS EXPOSURE CONTROL PLAN***

Blood-borne pathogens are microorganisms (*i.e.*, bacteria, virus) sometimes present in blood and certain body fluids, which are capable of causing human disease or death. These pathogens can also be present on objects and surfaces that have had contact with infected blood or certain bodily fluids. Blood-borne pathogens are also capable of causing human disease or death to unprotected people who are exposed to infected blood or bodily fluids. Diseases caused by blood-borne pathogens include, but are not limited to, hepatitis A, hepatitis B, hepatitis C, malaria, acquired immunodeficiency syndrome (AIDS), and other sexually transmitted diseases. The most significant of these and of greatest concern are hepatitis B and AIDS.

Hepatitis B is a serious disease caused by the hepatitis B virus (HBV), which attacks the liver. The virus can cause lifelong infection, cirrhosis (scarring) of the liver, liver cancer, liver failure, and death. Exposure symptoms include fever, fatigue, nausea, vomiting, muscle aches, loss of appetite, and jaundice (yellowing of the eyes or skin). Hepatitis diagnosis is difficult because some symptoms are similar to the flu and may remain mild for an extended period. The HBV can remain infectious for up to 10 days, even in dried blood. Hepatitis B vaccine is available for all age groups to prevent HBV infection.

Human immunodeficiency virus (HIV) is the virus that causes AIDS. People with HIV have what is called HIV infection. Some of these people will develop AIDS because of their HIV infection. Humans may be infected with HIV for many years without experiencing any symptoms. Upon development of AIDS, symptoms may include weight loss, skin lesions, dry cough, fever, fatigue, diarrhea, swelling of the lymph glands, and death. Presently, no cure exists for HIV or AIDS, and no vaccination is currently available.

A hazard exists for blood and other bodily fluids to be infected with dangerous, infectious pathogens. Employees could become infected if they are exposed to these blood-borne pathogens.

The purpose of this Blood-Borne Pathogens Exposure Control Plan is to provide the information, procedures, and requirements necessary to prevent employee exposure to blood-borne pathogens.

### **13.1 REGULATORY, REQUIREMENT, AND POLICY COMPLIANCE**

This Blood-Borne Pathogens Exposure Control Plan has been prepared in compliance with the following sources:

- 29 CFR §1910.1030, "Blood-Borne Pathogens".
- EM-385 (USACE, 2008), Section A.03.06.
- Shaw Procedure No. HS512, "*Handling of Blood or Other Potentially Infectious*



*Material” (2010).*

### 13.2 EXPOSURE DETERMINATION

OSHA requires employers to perform an exposure determination, identifying employees who may incur occupational exposure to blood or other potentially infectious materials. The exposure determination is made without regard to the use of PPE. For exposure determination purposes, employees are considered to be exposed, even if they wear PPE.

In general, it is anticipated that project activities will not present a high risk of employee exposure to blood or other bodily fluids. An exception to this would be under circumstances when personnel administer first aid care or CPR to injured workers, and when personnel clean up areas and equipment that may have been exposed to blood from the incident. In these cases, there is reasonable potential for employee skin, eye, mucous membrane contact with blood or other bodily fluids.

OSHA requires a listing of job classifications that identify tasks performed in which some employees may have potential for occupational exposure. This requirement is for employees to clearly understand that tasks they may perform have a potential for occupational exposure to infectious materials. The job classifications and associated tasks with an exposure potential are as follows:

- SS—Administer first aid or CPR, decontaminate or disinfect surfaces and articles that have contacted infectious materials, and prepare biohazard waste for temporary storage and subsequent disposal.
- SSHO—Administer first aid or CPR, decontaminate or disinfect surfaces and articles that have contacted infectious materials, and prepare biohazard waste for temporary storage and subsequent disposal.
- Laborer—Administer first aid or CPR, decontaminate or disinfect surfaces and articles that have contacted infectious materials, and prepare biohazard waste for temporary storage and subsequent disposal.

These employees have potential for exposure to blood-borne pathogens when administering first aid or CPR and when performing post-accident clean-up operations due to the following:

- Contact or absorption of blood or blood-contaminated objects through open or broken skin (*i.e.*, cuts, scratches, and rashes).
- Blood splashes to their eyes, nose, or mouth, or other mucous membranes.
- Punctures through the skin with a contaminated sharp object (*i.e.*, scissors).

Workers can reduce their risk of contacting blood-borne pathogens by implementing the recommended work practices (outlined in this plan) before, during, and after responding to emergency medical incidents primarily involving personal injuries.

### 13.3 SCHEDULE OF IMPLEMENTATION

The procedures in this Blood-Borne Pathogen Exposure Control Plan are to be implemented immediately. Implementation includes the following:

- Verifying personnel who are available to voluntarily provide first aid care and CPR hold a valid training certificate from a reputable training provider (American Red Cross or American Heart Association). The SSHO is responsible for verifying that an appropriate number of personnel have been trained in and hold valid certification to perform first aid and CPR.
- Verifying that personnel voluntarily providing first aid care, CPR, post-accident clean-up operations, and biohazard waste handling have received the specialized training that meets the requirements of 29 CFR §1910.1030; EM-385 (USACE, 2008), Section A.03.06; and Shaw Procedure No. HS512, "*Handling of Blood or Other Potentially Infectious Material*" (2010). This training is required for applicable personnel prior to the start-up of work and at least annually thereafter. This training shall cover the following elements:
  - Explanation of the contents of 29 CFR §1910.1030 and its procedure.
  - General explanation of the epidemiology and symptoms of blood-borne diseases.
  - Explanation of the modes of transmission of blood-borne pathogens.
  - Explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials.
  - Explanation of the use and limitations of practices that will prevent or reduce exposure, including appropriate engineering controls, work practices, and PPE.
  - Information on the types, proper use, location, removal, handling, decontamination, and/or disposal of PPE.
  - Explanation of the basis for selection of PPE.
  - Information on the hepatitis B vaccine, including information on its efficacy, safety, and the benefits of being vaccinated.
  - Information on the appropriate actions to take and persons to contact in an emergency.
  - Explanation of the procedure to follow if an exposure incident occurs, including the method of reporting an incident and the medical follow-up that will be made available.
  - Information on medical counseling that is provided for exposed individuals.
  - Explanation of required signs and labels.

The SSHO is responsible for verifying that this blood-borne pathogen training has occurred.

- Verifying that engineering controls are readily available at the project for use in an emergency. Engineering controls for this project include the following:
  - Red bags for temporary storage of contaminated PPE and cleaning materials.
  - Appropriately labeled, 30-gallon hard-plastic container for the temporary storage of red-bagged waste.
  - Whiskbroom and dust pan for cleaning up contaminated broken glass.
  - Gallon container of household bleach.
  - Large utility sponge.
  - Rolls of paper towels.
  - Container of liquid disinfectant hand soap.
  - “Biohazard” warning labels.
  - Individually packaged disinfectant towelettes.
  - CPR barriers.

The SSHO is responsible for verifying that this inventory of engineering controls is readily available at the project site for emergency use.

PPE is necessary to prevent employee exposures to infectious materials. The necessary PPE, which shall be maintained separately for use in an emergency, includes the following:

- P-100 particulate filtering face-piece respirator (3-M 8293 or equivalent).
- Face shields with ratcheting head-suspension.
- Safety glasses with clear lens.
- Disposable nitrile examination gloves.
- Monkey Grip work gloves.
- Poly-coated or Saran™-coated disposable Tyvek® coveralls with attached hood.
- Vinyl or latex disposable boot covers.
- Fluid-resistant surgical hoods.

The SSHO is responsible for verifying that the above inventory of PPE is readily available at the project site for emergency use.

#### **13.4 WORK-PRACTICE CONTROLS**

Work-practice controls reduce the likelihood of exposure by altering the manner in which a task is performed. The work-practice controls outlined in this section are applicable to the

- Disposable (single-use) gloves such as surgical or examination gloves shall be replaced when visibly soiled, torn, punctured, or when their ability to function as a barrier is compromised. Gloves should be changed as soon as possible after contact with blood or bodily fluids. After use, remove gloves from top to bottom inside out, not allowing unprotected skin to contact the exterior of the gloves. Hands and other skin surfaces shall be washed with disinfectant soap immediately after care has been rendered or cleanup has been completed. Gloves reduce the incidence of blood contamination of hands, but they cannot prevent penetrating injuries caused by sharp objects. Do not reuse gloves once removed.
- A CPR barrier shall be used when administering CPR.
- Protection for the eyes, face, hands, body, feet, and against inhalation hazards shall be provided as appropriate for each job.
- Gloves shall be worn when employees have the potential for direct skin contact with or when handling items or surfaces soiled with blood, other potentially infectious materials, mucous membranes, and non-intact skin.
- PVC work gloves may be disinfected for immediate reuse if the integrity of the glove is not compromised; however, gloves must be discarded if they are cracked, peeling, discolored, torn, punctured, or exhibit other signs of deterioration. All gloves shall be discarded at the conclusion of the activity or at the end of the shift – whichever comes first.
- Masks and eye protection or chin-length face shields shall be worn whenever splashes, spray, splatter, droplets, or aerosols of blood or other potentially infectious materials may be generated and there is a potential for eye, nose, or mouth contamination.
- Fluid-resistant clothing (e.g., coated Tyvek® suits) shall be worn if there is a potential for splashing or spraying of blood or potentially infectious materials. Coated Tyvek® coveralls shall also be worn during clean-up activities involving decontaminating or disinfecting surfaces and articles that have contacted potentially infectious materials, and when preparing biohazard waste for temporary storage and subsequent disposal.
- Fluid-resistant clothing (e.g., coated Tyvek® suits) shall be worn if there is a potential for clothing to become soaked with blood or other potentially infectious materials.
- Surgical caps or hoods shall be worn if there is a potential for splashing or splattering of blood or potentially infectious materials on the head.
- Fluid-proof coverings shall be worn if there is a potential for shoes or boots to contact blood or other potentially infectious materials.
- Disposable nitrile or vinyl gloves shall be worn when touching blood and bodily fluids involving universal precautions, mucous membranes, or non-intact skin, and for handling items or surfaces soiled with blood or bodily fluids to which universal precautions apply.

### **13.4.3 Waste Handling**

All wastes generated because of administering emergency first aid care and the subsequent clean-up activities shall be placed in red bags, labeled as a biohazard, and kept separately from other trash. Wastes used in medical emergency treatment (*i.e.*, gloves, towels, and gauze) shall also be bagged and stored in an identical manner. Red-bagged, biohazard waste shall be placed in the 30-gallon collection container, labeled, and secured for temporary storage and disposal. Additional containers shall be obtained as needed, and containers shall not be overfilled.

### **13.5 BIOHAZARD WASTE DISPOSAL**

The Contractor's Waste Transportation and Disposal Coordinator shall be contacted to arrange for proper disposal of biohazard wastes. The waste shall remain secured onsite in labeled container(s) until disposal arrangements have been made at an approved disposal facility. Disposal of the infectious waste container(s) shall be in accordance with applicable local, state, and federal regulations.

### **13.6 MEDICAL REQUIREMENTS**

Employees receive medical evaluations in accordance with Shaw Procedure No. HS100, "*Medical Policies and Procedures*" (2010). The medical requirements of this Blood-Borne Pathogens Exposure Control Plan include provisions for vaccinations to all exposed employees as well as for post-exposure procedures and evaluations. All employees with potential for occupational exposure to blood-borne pathogens shall receive the hepatitis B vaccination and tetanus vaccination prior to workplace exposure, unless they read and sign the Hepatitis B and Tetanus Vaccination Declination form (**Appendix E**).

#### **13.6.1 Hepatitis B Vaccination**

All potentially exposed employees will have made available to them, at no cost, a hepatitis B vaccination. Recombivax or Accelerated Recombivax vaccines shall be used. If the employee has previously received the hepatitis B vaccination and/or antibody testing reveals that the employee is immune, a new vaccination is not required. Employees may be subjected to occupational exposure immediately after receiving the first shot in the hepatitis B vaccination series. Antibody testing shall be performed 30 days after completing the hepatitis B vaccination series. Employees unable to develop immunity shall be precluded from further occupational exposure. If a physician recommends a booster dose(s), the dose(s) shall be provided according to standard recommendations for medical practice. The employee will also receive training as to the vaccine's efficacy, safety, benefits, and consequences prior to administration. The vaccination series may also be initiated within 24 hours of an incident with exposure potential.

### ***13.6.2 Tetanus Vaccination***

All employees subject to this policy shall maintain current status documentation of their tetanus vaccination (current status for tetanus vaccination is within 5 years). All potentially exposed employees shall be offered a tetanus vaccination at no cost.

### ***13.6.3 Post-Exposure Procedures and Evaluation***

All exposure incidents shall be reported as required by Shaw Procedure No. HS020, “*Accident Prevention Program: Reporting, Prevention, and Review*” (2010). The occupational medicine physician shall be advised in addition to standard notification procedures.

Following a report of an exposure incident, each involved employee shall be offered a confidential medical evaluation and follow-up, which includes at least the following elements:

- Documentation of the route(s) of exposure.
- The HBV and HIV antibody status of the source patient(s) (if known), and how the exposure occurred.
- The medical confidentiality rights of the source patient shall be preserved at all times.
- If the source patient can be determined and permission is obtained, collection of and testing of the source patient’s blood to determine the presence of HIV or HBV infection shall be conducted under the direction of the attending physician.
- Collection of blood from the exposed employee as soon as possible after the exposure incident for the determination of HIV and/or HBV status. Actual core antibody and surface antigen testing of the blood or serum sample may be done at that time or later if the employee so requests. If the test is deferred, arrangements shall be made through the attending physician to properly archive the specimen.
- Follow-up of the exposed employee including antibody and antigen testing, counseling, illness reporting, and safe and effective post-exposure prophylaxis, according to standard recommendations for medical practice as defined by the occupational medicine physician.

Where applicable laws require employee consent, documented consent shall be obtained prior to testing. If an employee refuses the blood test, documentation of the refusal will be made. Documentation of the test results shall be made available to the exposed employee(s). All test results shall be kept confidential.

### ***13.6.4 Physician Information***

The following information shall be provided to the evaluating physician:

- Copy of 29 CFR §1910.1030, “Bloodborne Pathogens” and its appendices.
- Description of the affected employee’s duties as they relate to the employee’s occupational exposure.

### **13.6.5 Physician Opinion**

For each potentially exposed employee evaluation, the employee shall receive a copy of the evaluating physician's written opinion within 15 working days of completion of the evaluation. The written opinion shall be limited to the following information:

- The physician's recommended limitations upon the employee's ability to receive the hepatitis B vaccination.
- A statement that the employee has been informed of the results of the medical evaluation and that the employee has been told about any medical conditions resulting from exposure to blood or other potentially infectious materials that require further evaluation or treatment.
- Specific findings or diagnoses that are related to the employee's ability to receive the hepatitis B vaccination. Any other findings and diagnoses shall remain confidential.

## **13.7 HAZARD COMMUNICATION**

There are regulatory requirements for labels, signs, and training. The provisions and exceptions for these are contained in the subsections below.

### **13.7.1 Warning Labels**

Containers used for disposal of blood-contaminated supplies and waste will be labeled in accordance with the word "biohazard." The following symbol shall be an integral part of the label:



### **13.7.2 Warning Signs**

There will be no designated areas for medical treatment on the project site because first aid is provided on an emergency basis only; therefore, warning signs are not applicable. In cases of potential exposure, observers and non-essential personnel should be verbally warned to keep a safe distance from injured personnel.

### **13.7.3 Employee Training Program**

All employees who are first aid/CPR-trained and may provide assistance shall be trained in the requirements for voluntary providers as described in Shaw Procedure No. HS512, "*Handling of Blood or Other Potentially Infectious Material*" (2010), this SSHP and its addenda, and the general provisions of this procedure.

## **13.8 RECORD KEEPING**

There are federal record-keeping requirements for training, medical, and incident-reporting documentation. The provisions for keeping these records are contained in the subsections below.

### ***13.8.1 Training Records***

All employees covered under this Blood-Borne Pathogens Exposure Control Plan shall be trained as required. A record of the training shall be appropriately generated. The training record will contain the date of the training session(s), the contents or a summary of the training session(s), the names of persons conducting the training, and the names of all persons attending the training sessions.

The training records will be maintained by the Contractor Training Department for at least 5 years from the training date.

### ***13.8.2 Medical Records***

Medical records necessary for employees of the Contractor will include documentation of HBV vaccination status, medical follow-up, post-exposure testing, and a medical professional's written evaluation.

The employee medical records will be forwarded to and maintained by CORE Health Networks, 12091 Bricksome Avenue, Suite B, Baton Rouge, Louisiana, 70816 for inclusion in the employee's medical file. Confidentiality of all medical records shall be maintained.

The Contractor maintains employee medical records for the duration of the employee's employment plus 30 years thereafter. If, for whatever reason, the Contractor no longer does business and no successor exists, the Contractor will notify the director of NIOSH in writing 3 months prior to the disposal of records. If so directed, the records shall be transferred to the director of NIOSH.

### ***13.8.3 Incident Recording***

An incident that occurs because of rendering emergency medical care will be recorded on the OSHA 300 log as OSHA defines work-related injuries and illnesses. All injuries involving the release of blood or bodily fluids must be immediately reported to the HSM for proper reporting and follow-up.

## **13.9 PLAN REVIEW AND UPDATE**

This Blood-borne Pathogens Exposure Control Plan shall be reviewed and updated on an annual basis.



## 14.0 REFERENCES

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American Conference of Governmental Industrial Hygienist, 2010, *Threshold Limit Values and Biological Expose Indices*, Cincinnati, Ohio.

American National Standards Institute, <<http://www.ansi.org/>>.

Camp.

Code of Federal Regulations, Title 29, Part 1910, *Safety and Health Regulations for General Industry*, U.S. Government Printing Office, Washington, D.C., <<http://www.access.gpo.gov/nara/cfr/index.html>>.

Code of Federal Regulations, Title 29, Part 1926, *Safety and Health Regulations for Construction*, U.S. Government Printing Office, Washington, D.C., <<http://www.access.gpo.gov/nara/cfr/index.html>>.

Shaw Environmental & Infrastructure, Inc., 2010, *Health and Safety Policies and Procedures*, <<http://shawnetv2.shawgrp.com/sites/govern/pp/ei/EHS%20Procedures/Forms/AllItems.aspx>>

U.S. Army Corps of Engineers, 2008, *Safety and Health Requirements Manual*, EM-385-1-1, Washington, D.C., September 15.

## APPENDIX A

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### *SITE SAFETY AND HEALTH PLAN AMENDMENT DOCUMENTATION (RESERVED FOR FUTURE CHANGES)*

## **Site Safety and Health Plan Amendment Documentation**

**Project Name:**

**Project No.**

**Amendment No.**

**Date:**

**The Amendment Addresses the Following Sections:**

**Task(s) Amendment Affects:**

**Reason for Amendment:**

**Amendment:**

**Completed by:**

**Approved by:**

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APPENDIX B  
*ACTIVITY HAZARD ANALYSIS*

## Activity Hazard Analysis # 1

Activity/Work Task: <b>Vehicle Operations</b>	Overall Risk Assessment Code (Use highest code)	<b>M</b>				
Project Location: Site 19 and 27 NSF Indian Head, MD	<b>Risk Assessment Code (RAC) Matrix</b>					
Contract Number: N62470-08-D-1007 Task Order No. JU46	<b>Hazard Severity</b>	<b>Hazard Probability</b>				
Date Prepared: 1/31/2011		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 16.6%;">Frequent level A</td> <td style="width: 16.6%;">Likely level B</td> <td style="width: 16.6%;">Occasional level C</td> <td style="width: 16.6%;">Seldom level D</td> <td style="width: 16.6%;">Unlikely level E</td> </tr> </table>	Frequent level A	Likely level B	Occasional level C	Seldom level D
Frequent level A	Likely level B	Occasional level C	Seldom level D	Unlikely level E		
Prepared by (Name/Title): Mike Harrison CHST/OHST	Catastrophic (I) – death, system loss, or severe environmental damage	<b>E</b>				
	Critical (II) – disabling injury, major system or environmental damage	<b>H</b>				
Reviewed by (Name/Title):	Marginal (III) – recordable injury, minor system or environmental damage	<b>M</b>				
	Negligible (IV) – first aid, minor system impairment	<b>L</b>				
Notes: (Field Notes, Review Comments, etc.)	Step 1: Review each <b>“Hazard”</b> with identified safety <b>“Controls”</b> and determine RAC (See above)					
	<b>“Probability”</b> is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.					
	<b>RAC Chart</b>					
	<b>“Severity”</b> is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible					
	Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each “Hazard” on AHA. Annotate the overall highest RAC at the top of AHA.					

Principal Steps	Hazards	Recommended Controls	RAC
Vehicle Operations	Backing collision	<ul style="list-style-type: none"> <li>Back into parking spaces upon arrival whenever possible.</li> <li>Walk around the vehicle before backing in or out to identify any new conditions or obstructions.</li> <li>Use a spotter when backing in or out whenever possible.</li> <li>Understand hand signals.</li> <li>Sound horn prior to backing in or out.</li> <li>Back slowly in areas of obstructed vision.</li> <li>Check the rearview and side mirrors prior to backing, remembering mirrors do not show everything. (Note: All vehicles other than automobiles must have small convex mirrors attached to the side mirrors).</li> <li>Anticipate others who may be backing out into your pathway and adjust accordingly.</li> </ul>	L
	Unfamiliarity with vehicle resulting in loss of control or collision	<ul style="list-style-type: none"> <li>Familiarize yourself with the vehicle before moving.</li> <li>Properly adjust seat then mirrors.</li> <li>Review the dashboard controls, steering radius, overhead, and side clearances.</li> <li>Locate windshield wipers and lights.</li> <li>All vehicle occupants shall wear a seat belt.</li> </ul>	M

## ACTIVITY HAZARD ANALYSIS # 1

ACTIVITY Vehicle Operations ANALYZED BY / DATE \_\_\_\_\_ REVIEWED BY / DATE \_\_\_\_\_

Principal Steps	Hazards	Recommended Controls	RAC
Vehicle Operations (continued)	Airbags (if equipped)	<ul style="list-style-type: none"> <li>Familiarize yourself with the vehicle airbag system.</li> <li>Adjust seat so the driver is outside the inflation envelope of the airbag and can still operate the pedals comfortably.</li> <li>Vehicles equipped with airbags control switches (<i>i.e.</i>, pickup trucks) must be turned on.</li> <li>All vehicle occupants shall wear a seat belt.</li> </ul>	L
	Excessive Speed	<ul style="list-style-type: none"> <li>Obey all posted speed limits.</li> <li>Radar detectors are prohibited in all company-owned, -leased, or -rented vehicles.</li> <li>Reduce travel speed during hazardous conditions (<i>i.e.</i>, rain, fog, snow, or ice).</li> <li>Identify if your vehicle has Anti-Lock Brakes (ABS). If it does, do not pump the brakes to stop when the vehicle has begun to skid. Apply steady pressure to the brakes. If the vehicle does not have ABS, you will want to pump the brakes to stop during slippery conditions.</li> </ul>	M
	Insufficient following distance/spacing	<ul style="list-style-type: none"> <li>Follow the 3-second rule.</li> <li>Increase the 3-second rule as necessary during hazardous travel conditions (<i>add one second for each hazard</i>).</li> <li>Drive defensively: Always leave yourself an "out" during travel.</li> <li>When stopping, make sure that you leave enough distance between you and the car in front of you. You should be able to see the rear tires of the vehicle in front when stopped.</li> <li>When at a red light and it turns green, use the "delayed start" technique by counting to three before you take your foot off the brake.</li> </ul>	L
	Loss of control resulting in a skid	<ul style="list-style-type: none"> <li>If the vehicle has begun to skid out of control, turn the steering wheel in the direction of the skid (the direction you want the vehicle to go) and re-adjust the wheel, as necessary.</li> <li>Slow travel speeds during hazardous travel conditions.</li> <li>Use 4-wheel drive, if available, when driving vehicles off road, on steep inclines, in muddy conditions, <i>etc.</i></li> <li>Do not take vehicles "off road" if they cannot be operated safely.</li> </ul>	M

## ACTIVITY HAZARD ANALYSIS # 1

ACTIVITY Vehicle Operations ANALYZED BY / DATE \_\_\_\_\_ REVIEWED BY / DATE \_\_\_\_\_

Principal Steps	Hazards	Recommended Controls	RAC
Vehicle Operations (continued)	Blind spots	<ul style="list-style-type: none"> <li>• Become familiar with any blind spots associated with your vehicle.</li> <li>• Adjust mirrors properly.</li> <li>• Make sure you use your directional signals.</li> <li>• Always look over your shoulder to ensure the lane is clear when changing lanes.</li> <li>• Be cautious when approaching other driver's blind spots.</li> </ul>	L
	Cellular phones	<ul style="list-style-type: none"> <li>• Do not use handheld cellular phones while driving.</li> <li>• Pull over to the side of the road when making a call. (The shoulder of the freeway or expressway is not an authorized or a safe place to conduct phone calls. It is for emergencies only.)</li> </ul>	M
	Mechanical failure of vehicle	<ul style="list-style-type: none"> <li>• Perform daily inspections of your vehicle.</li> <li>• Any vehicle with mechanical defects that may endanger the safety of the driver, passengers, or the public shall not be used.</li> </ul>	L
	Operating a vehicle under the influence of drugs or alcohol	<ul style="list-style-type: none"> <li>• Never drive under the influence of drugs or alcohol.</li> <li>• Never ride in a vehicle if you suspect the driver is under the influence of drugs or alcohol.</li> <li>• Random and post-accident drug and alcohol testing shall be performed in accordance with Shaw E &amp; I Procedure No. HS101, "Drug and Alcohol Testing".</li> <li>• Disciplinary actions, including termination, will be taken against anyone who is convicted of or pleads no-contest to the charges of driving under the influence in accordance with Shaw E &amp; I Procedure No. HS800, "Motor Vehicle Operations: General Requirements."</li> <li>• Project-assigned hourly employees are not permitted to operate company-owned, -leased, or -rented vehicles after 10:00 p.m. without written authorization from their supervisor.</li> </ul>	M
	Insufficient driver alertness, unsafe attitude, and physical condition	<ul style="list-style-type: none"> <li>• Do not operate any vehicle when abnormally tired, temporarily disabled, or under the influence of drugs or alcohol.</li> <li>• Keep an even temper when driving. Do not let the actions of others affect your attitude.</li> <li>• No employee is authorized to operate a company vehicle (including rentals) after having been on duty for a period of 16 hours.</li> <li>• No employee may drive for more than 12 hours in a single on-duty period.</li> </ul>	M

## ACTIVITY HAZARD ANALYSIS # 1

ACTIVITY Vehicle Operations ANALYZED BY / DATE \_\_\_\_\_ REVIEWED BY / DATE \_\_\_\_\_

Principal Steps	Hazards	Recommended Controls	RAC
Vehicle Operations (continued)	Vehicle loading	<ul style="list-style-type: none"> <li>Do not overload the vehicle.</li> <li>Secure all equipment within the body of the vehicle.</li> <li>Do not block side view mirrors with loads.</li> <li>Do not transport Department of Transportation-manifested hazardous materials without a commercial driver's license.</li> <li>Dispatch all equipment and personnel with proper forms and identification.</li> </ul>	L
	Improper accident management	<ul style="list-style-type: none"> <li>Ensure safety equipment is in the vehicle. Safety equipment should include a spare tire, jack, first-aid kit, fire extinguisher, reflective vest, and flashlight. Flares, and/or reflective triangles should be available in larger trucks.</li> <li>Ensure the proper documentation is in the vehicle, to include the operations manual for the vehicle, insurance card, vehicle registration, and Shaw accident forms.</li> <li>In the event of an accident: Stop and call for medical assistance, notify the police, and complete/submit the Vehicle Accident Report to your supervisor.</li> <li>If a Shaw employee is injured, the Return to Work, Medical Release and Treatment of Injury/Illness forms must be completed at the health clinic or emergency room.</li> </ul>	M

Equipment to be Used	Training Requirements/Competent or Qualified Personnel Name(s)	Inspection Requirements
Personal Protective Equipment – N/A:  Equipment: Seatbelt Spare tire and jack First aid kit Fire extinguisher Flashlight Operations manual for the vehicle Insurance card Vehicle registration Accident report forms	Competent Person (CP) / Qualified Person (QP):  CP/SSHO _____  QP/First Aid and CPR _____  QP/First Aid and CPR _____  Training Requirements:  Site safety orientation Licensed vehicle operators Defensive driving (all Shaw personnel)	Vehicle inspections (daily) Vehicle inspections (prior to trips greater than 50 miles for Shaw provided vehicles)



# Activity Hazard Analysis (AHA) # 2

Activity/Work Task: <b>Mobilization / Staging of Materials</b>	Overall Risk Assessment Code (RAC)		<b>3</b>		
Project Location: Site 19 and 27 NSF Indian Head, MD	<b>RAC Matrix</b>				
Contract Number: N62470-08-D-1007 Task Order No. JU46	<b>Hazard Severity</b>	<b>Mishap Probability</b>			
Date Prepared: 1-31-2011		A - Likely	B - Occasional	C - Seldom	D - Unlikely
Prepared by Mike Harrison CHST/OHST	Category I - Catastrophic	1	1	2	3
	Category II - Critical	1	2	3	4
Reviewed by (Name/Title):	Category III - Marginal	2	3	4	5
	Category IV - Negligible	3	4	5	5
<b>Notes:</b> Mobilization of personnel and equipment to the project site. Staging of equipment including mobile office, portable generator, portable restrooms, and security fencing.	Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above).				
	"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.			<b>RAC Chart</b>	
	"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible.			1 - Critical	
	Step 2: Identify the RAC (Probability/Severity) as 1, 2, 3, 4 or 5 for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.			2 - Serious	
				3 - Moderate	
				4 - Minor	
				5 - Negligible	

Job Steps	Hazards	Controls	RAC
Vehicle Operations	Backing	<ul style="list-style-type: none"> <li>Back into parking spaces upon arrival, whenever possible.</li> <li>Perform 360 degree walk around the vehicle before backing to identify any new conditions or obstructions.</li> <li>Use a spotter when backing whenever possible.</li> <li>Understand hand signals.</li> <li>Sound horn prior to backing.</li> <li>Check the rear-view and side mirrors prior to backing (Note: All vehicles, other than automobiles, must have small convex mirrors attached to the side mirrors.)</li> <li>Back slowly in areas of obstructed vision.</li> <li>Anticipate others who may be backing out into your pathway and adjust accordingly.</li> </ul>	4

## 2 – AHA – MOBILIZATION / STAGING OF EQUIPMENT

Job Steps	Hazards	Controls	RAC
Vehicle Operations (continued)	Unfamiliar with the vehicle	<ul style="list-style-type: none"> <li>Familiarize yourself with the vehicle before moving.</li> <li>Review the dashboard controls, steering radius, overhead and side clearances.</li> <li>Properly adjust mirrors and seat.</li> <li>Locate windshield wipers and lights.</li> </ul>	4
	Speed	<ul style="list-style-type: none"> <li>Obey all posted speed limits.</li> <li>Radar detectors are prohibited in all company owned, leased or rented vehicles.</li> <li>Reduce travel speed during hazardous conditions (i.e. rain, fog, snow).</li> <li>Identify if your vehicle has Anti-Lock Brakes (ALB). If it does, DO NOT pump the brakes to stop when the vehicle has begun to skid. Apply steady pressure to the brakes. If the vehicle does not have ALB, you will want to pump the brakes to stop during slippery conditions.</li> <li>Fasten and properly adjust seat belt.</li> </ul>	4
	Distances/Spacing	<ul style="list-style-type: none"> <li>Continually check your rear/side view mirrors.</li> <li>Use the 3 second rule to assure safe distance between vehicles.</li> <li>Increase the 3 second rule as necessary during hazardous travel conditions.</li> <li>Regularly scan the area you will be entering in the next 10 to 12 seconds.</li> <li>Always leave yourself an "out" during travel.</li> <li>When stopping, make sure that you leave enough distance between you and the car in front of you. You should be able to see the rear tires of the vehicle in front, when stopped. (Tire Concept)</li> <li>Obey speed limit and traffic regulations.</li> <li>When at a red light, and it turns green, use the "delayed start" technique, by counting to three before you take your foot off the brake.</li> <li>DO NOT TAILGATE.</li> <li>Keep headlights (running lights) on for maximum visibility.</li> </ul>	4

## 2 – AHA – MOBILIZATION / STAGING OF EQUIPMENT

Job Steps	Hazards	Controls	RAC
Vehicle Operations (continued)	Skids	<ul style="list-style-type: none"> <li>• If the vehicle has begun to skid out of control, turn the steering wheel in the direction of the skid and re-adjust the wheel, as necessary.</li> <li>• Reduce speed during hazardous travel conditions.</li> <li>• Use 4-wheel drive, if available, when driving vehicles off road, on steep inclines, muddy conditions, etc.</li> <li>• Do not take vehicles "off road" if they can not be operated safely.</li> </ul>	4
	Blind Spots	<ul style="list-style-type: none"> <li>• Become familiar with any blind spots associated with your vehicle.</li> <li>• Adjust mirrors to give maximum viewing area.</li> <li>• Use your directional devices to signal all turns and when changing lanes; check rear/side view mirror and glance over shoulder to assure the lane is clear.</li> <li>• Avoid other driver's blind spots; slow down and let other vehicle pass.</li> </ul>	4
	Distractions e.g. Cellular Phones, Reading Maps/Directions, Eating, etc.	<ul style="list-style-type: none"> <li>• Use speaker phone, not handheld cellular phones while driving.</li> <li>• Pull over to the side of the road when making a call or checking directions.</li> </ul>	4
	Accidents	<ul style="list-style-type: none"> <li>• In the event of an accident: Stop; call for medical assistance; notify police; complete Vehicle Accident Report and submit to you supervisor.</li> <li>• If a Shaw employee is injured, the CORE Health Services forms, Return to Work, Medical Release and Treatment of Injury/Illness, must be completed at the health clinic or Emergency Room.</li> </ul>	4
	Equipment failure	<ul style="list-style-type: none"> <li>• Perform daily inspections of your vehicle.</li> <li>• Maintain vehicle safety equipment, e.g., mirrors, alarms, horns, wipers, lights, brakes.</li> <li>• Maintain vehicle, e.g., tire pressure, fluid levels.</li> <li>• Any vehicle with mechanical defects that may endanger the safety of the driver, passengers or the public shall not be used.</li> <li>• Ensure safety equipment is in the vehicle. Safety equipment should include a spare tire, jack, first-aid kit, fire extinguisher and flashlight. Flares and/or reflective triangles should be available in larger trucks.</li> <li>• Ensure the proper documentation is in the vehicle. Documentation should include an operations manual for the vehicle, insurance card, vehicle registration and Shaw Accident forms.</li> </ul>	4

## 2 – AHA – MOBILIZATION / STAGING OF EQUIPMENT

Job Steps	Hazards	Controls	RAC
Vehicle Operations (continued)	Influenced by drug and alcohol	<ul style="list-style-type: none"> <li>• NEVER DRIVE UNDER THE INFLUENCE OF DRUGS OR ALCOHOL.</li> <li>• Disciplinary action, including termination, will be taken against anyone who is convicted of or pleads no-contest to the charges of driving under the influence in accordance with Shaw Health and Safety Procedure HS800.</li> <li>• Project-assigned hourly employees are not permitted to operate company owned, leased or rented vehicles after 10:00 p.m. without written authorization from their supervisor.</li> </ul>	4
	Driver attitude / Road Rage	<ul style="list-style-type: none"> <li>• Do not operate any vehicle when abnormally tired, temporarily disabled or under the influence of drugs or alcohol.</li> <li>• Keep an even temper when driving. Do not let the actions of others affect your attitude. Do not allow yourself to become frustrated, rushed, distracted or drowsy.</li> </ul>	4
	Fatigue	<ul style="list-style-type: none"> <li>• Stop and rest if fatigued. Exit road and enter a safe area. Rest until fully refreshed. (No employee may drive for more than 12 hours in a single on-duty period).</li> <li>• No employee is authorized to operate a company vehicle (including rentals) after having been on-duty for a period of 16 hours.</li> <li>• Do not use medication, e.g. cold/allergy medicines, when driving a vehicle.</li> </ul>	4
	Vehicle Loading	<ul style="list-style-type: none"> <li>• DO NOT OVERLOAD the vehicle.</li> <li>• Secure all equipment and supplies within the body of the vehicle using proper tie downs.</li> <li>• Do not block side view mirrors with load.</li> <li>• Do not transport Department of Transportation (DOT) manifested hazardous materials without a commercial driver's license (CDL).</li> <li>• Dispatch all equipment and personnel with proper forms and identification.</li> </ul>	4
Equipment and Materials handling	Muscle strains	<ul style="list-style-type: none"> <li>• Observe 50 lb individual lifting limit.</li> <li>• Don't lift and twist.</li> <li>• Get help for awkward loads and for loads greater than 60 lbs.</li> <li>• Train workers in safe lifting techniques.</li> </ul>	4

## 2 – AHA – MOBILIZATION / STAGING OF EQUIPMENT

Job Steps	Hazards	Controls	RAC
	Sharp Objects	<ul style="list-style-type: none"> <li>Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects.</li> <li>Maintain all hand and power tools in a safe condition.</li> <li>Keep guards in place during use.</li> </ul>	4
	Falling objects	<ul style="list-style-type: none"> <li>Wear a hardhat, stay alert and clear of materials suspended overhead, and wear steel-toed boots.</li> </ul>	4
	Fire	<ul style="list-style-type: none"> <li>Fire extinguishers shall be suitably placed, distinctly marked, readily accessible, and maintained in a fully charged and operable condition.</li> <li>Fire lanes providing access to all areas shall be established and maintained free of obstruction (the minimum space between one-story non-fire-resistant buildings shall be 20 feet). Initial survey of the suitability and effectiveness of fire prevention and protection measures and facilities at each installation shall be made by competent persons.</li> </ul>	4
	High winds	<ul style="list-style-type: none"> <li>Mobile/portable facilities shall be anchored to withstand high winds.</li> </ul>	4
Installation of office and support structures	Contact with utilities, installation of electrical power	<ul style="list-style-type: none"> <li>Above and underground utilities shall be located. A qualified person shall install required utilities in compliance with national, state, and local codes.</li> </ul>	3
	Slip, trip, and fall hazards	<ul style="list-style-type: none"> <li>Determine best access route before transporting equipment.</li> </ul>	4
	Cut hazards	<ul style="list-style-type: none"> <li>Wear adequate hand protection.</li> </ul>	4
	Fire	<ul style="list-style-type: none"> <li>A/BC Fire extinguishers shall be suitably placed, distinctly marked, readily accessible, and maintained in a fully charged and operable condition.</li> </ul>	4
	Contact with moving equipment/vehicles	<ul style="list-style-type: none"> <li>Work area will be barricaded / demarcated.</li> </ul>	3
	Hazard communications	<ul style="list-style-type: none"> <li>Label all containers as to contents (fuel can, etc.).</li> <li>Obtain Material Safety Data Sheets for materials brought to the site.</li> </ul>	4
	Strains and sprains	<ul style="list-style-type: none"> <li>Use the proper tool for the job being performed.</li> <li>Avoid twisting/turning while pulling on tools, materials, etc.</li> </ul>	4

## 2 – AHA – MOBILIZATION / STAGING OF EQUIPMENT

Job Steps	Hazards	Controls	RAC
Installation of office and support structures (continued)	Unattended Worker	<ul style="list-style-type: none"> <li>The "buddy system" will be used at all times while working on site. The buddy system requires that each site worker maintain visual, voice, cellular telephone, or radio communication with at least one other site worker. Workers will agree upon a set schedule for checking on each other during the daily safety meetings.</li> </ul>	4
	Level/Blocking trailer, driving stakes (stabilization) anchoring	<ul style="list-style-type: none"> <li>Use caution when jacking and placing blocks or cribbing. If ground is soft, add stone to secure footing.</li> </ul>	4
	Setting steps in place	<ul style="list-style-type: none"> <li>Steps must be OSHA-approved (with proper handrails, midrail, steps, with a platform in front of door; refer to U.S. Army Corps of Engineers (Section 21.E 02, 05, 07, 08).</li> </ul>	4
	Electrical wiring / shock hazard	<ul style="list-style-type: none"> <li>Lighting for work and means of egress; electrical hookup to trailers to be made by qualified electrician. GFCIs required on all circuits.</li> </ul>	3
	Clearing hazards	<ul style="list-style-type: none"> <li>If clearing is necessary, tree cutting will comply with chainsaw safety standards.</li> </ul>	3
	Ventilation	<ul style="list-style-type: none"> <li>Trailer ventilation shall not bring in exhaust from vehicles, etc.</li> </ul>	4
Work area preparations / setup	Slips, Trips, falls	<ul style="list-style-type: none"> <li>Clear walkways, work areas of equipment, tools and debris.</li> <li>Mark, identify, or barricade other obstructions.</li> </ul>	4
	Struck by/ Against, Flying Debris, Protruding Objects	<ul style="list-style-type: none"> <li>Wear reflective warning vests when exposed to vehicular traffic.</li> <li>Barricade or enclose the renovation area to keep the public out.</li> <li>Wear hard hats, safety glasses and steel-toe boots.</li> </ul>	4
	Handling Heavy Objects	<ul style="list-style-type: none"> <li>Observe proper lifting techniques.</li> <li>Obey sensible lifting limits (50-pound maximum per person manual lifting).</li> <li>Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads or get assistance from others.</li> </ul>	4
	Unattended Worker	<ul style="list-style-type: none"> <li>The "buddy system" will be used at all times while working on site. The buddy system requires that each site worker maintain visual, voice, cellular telephone, or radio communication with at least one other site worker. Workers will agree upon a set schedule for checking on each other during the daily safety meetings.</li> </ul>	4

## 2 – AHA – MOBILIZATION / STAGING OF EQUIPMENT

Job Steps	Hazards	Controls	RAC
Work area preparations / setup (continued)	High/Low Ambient Temperature	<ul style="list-style-type: none"> <li>• Provide fluids to prevent worker dehydration.</li> <li>• Wear insulated clothing appropriate to ambient temperatures.</li> <li>• Refer to and follow H&amp;S Procedures HS400, Heat Stress and HS 401 Cold Stress. Provided in the Site Safety and Health Plan (SSHP), Appendix D of the Accident Prevention Plan (APP).</li> </ul>	4
Ladder use to access elevated work locations	Fall hazard to the user and an overhead hazard to those working below.	<ul style="list-style-type: none"> <li>• The job site should be barricaded and/or roped off below the ladder. The ground man or other employees in the barricaded area must wear hard hats. The surface, besides being level, should be firm.</li> </ul>	3
	Equipment failure, sudden movement, drop, etc.	<ul style="list-style-type: none"> <li>• Inspect the ladder before use. Defects such as split rails or bent supports are not acceptable.</li> <li>• When ladders with such defect are discovered, they shall be immediately withdrawn from service.</li> </ul>	3
	Inadequate footing surface, tipping, collapse, falls, etc.	<ul style="list-style-type: none"> <li>• Portable ladder feet shall be placed on a substantial base, and the area around the top and bottom of the ladder shall be kept clear. The step ladder center locking mechanism shall be locked in place before the ladder is used and its four legs placed on a level surface.</li> <li>• Do not place ladders in passageways, doorways, driveways, or any location where they may be displaced by other activities, unless protected by barricades or guards. Where fire doors must be blocked open, a fire watch must be provided.</li> </ul>	3
	Potential to tip the ladder and fall and/or drop materials on others.	<ul style="list-style-type: none"> <li>• Always use both hands to climb up and down so you can control your center of gravity.</li> <li>• Maintain three point contact with the ladder.</li> <li>• Never carry anything in your hands while you go up or down a ladder. Carry tools in a tool belt or transfer tools in a bucket with a tag line to the working level.</li> <li>• Do not work from higher than the third rung from the top of a straight ladder, not from the top step of a portable stepladder.</li> </ul>	3
Truck Load / Unload Operations	Handling Heavy Objects	<ul style="list-style-type: none"> <li>• Observe proper lifting techniques.</li> <li>• Obey sensible lifting limits (50-pound maximum per person manual lifting).</li> <li>• Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads or get assistance from others.</li> <li>• Use a forklift or other PIT as necessary to handle and load heavy or awkward equipment / materials.</li> </ul>	4

## 2 – AHA – MOBILIZATION / STAGING OF EQUIPMENT

Job Steps	Hazards	Controls	RAC
	Struck By/ Against Heavy Equipment	<ul style="list-style-type: none"> <li>Wear reflective warning vests when exposed to vehicular traffic.</li> <li>Obey posted speed limits.</li> <li>Make eye contact with operators before approaching equipment.</li> <li>Understand and review hand signals.</li> <li>Utilize trained flaggers as necessary.</li> </ul>	4
Changed or Unanticipated Conditions	Safety or health hazards that may be derived from changed or unanticipated conditions.	<ul style="list-style-type: none"> <li>Modify the AHA as often as necessary to address new or unanticipated hazards. Use Shaw procedure HS045 "Job Safety Analysis" to facilitate field documentation.</li> </ul>	NA

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
<ul style="list-style-type: none"> <li>Modified Level D – , safety boots, hard hat, safety glasses and abrasion resistant gloves, ear protection near heavy equipment, high-visibility vest near vehicle traffic hazards.</li> <li>Extension and/or step-ladders.</li> <li>Forklifts or other PITs.</li> <li>Fire extinguishers.</li> <li>Ensure that Shaw vehicles are equipped with first aid kits, fire extinguishers, and emergency reporting forms.</li> </ul>	<ul style="list-style-type: none"> <li><b>Site-specific orientation</b> provided for all employees prior to working on site. The orientation will cover the contents of the APP/SSHP including hazard communication training, noise and heat stress hazard controls.</li> <li><b>Safety Meetings:</b> Tailgate safety meetings will be held on a daily basis. A more in-depth safety meeting will be conducted at the beginning of each week to provide pertinent training topics.</li> <li><b>Site Safety and Health Officer (SSHO)/Competent Person:</b> is the SSHO/Competent Person in regards to general construction safety and will provide oversight and direction of site health and safety requirements and implementation of the APP and SSHP.</li> <li><b>Radiation Safety Officer (RSO):</b> is the RSO provided to oversee and direct all radiological work in accordance with the Radiation Protection Plan (RPP), Appendix C of the Work Plan.</li> <li><b>First Aid (FA)/Cardio Pulmonary Resuscitation (CPR):</b> At least two employees with current certificates in FA/CPR will be on site whenever field activities are being conducted. If more than one employee from a subcontractor is on site, at least one of the employees will be trained in FA/CPR.</li> <li><b>Fire Extinguisher Training:</b> All personnel on site will have current training concerning the use of fire extinguishers</li> <li><b>Ladder Training:</b> Personnel who use portable and/or fixed ladders on the project site shall receive training during the site orientation on the safe use, care and placement of ladders.</li> <li><b>Flagger Training:</b> If needed due to project site traffic hazards, affected personnel shall be required to have initial and site-specific training before being assigned flagging duties in accordance with the MUTCD.</li> <li><b>Forklift Training:</b> If forklifts or other powered-industrial trucks (PIT) are utilized on site affected personnel shall be trained prior to the use of.</li> </ul>	<ul style="list-style-type: none"> <li>The SSHO/Competent Person shall conduct safety inspections daily during periods of work activity to determine if operations are being performed in accordance with the APP, SSHP, and applicable requirements and regulations.</li> <li>The SSHO/Competent Person shall inspect equipment prior to each use. No equipment will be placed in service until all deficiencies are corrected.</li> <li>Shaw will conduct periodic (at least monthly when work is in progress) inspections of the project site in accordance with H&amp;S Procedure HS021c, Accident Prevention Program: Management Safety Inspections. These inspections are performed by the Project Manager or designee and documented on the Project Safety Inspection Report form.</li> </ul> <p>All safety deficiencies and corrective actions will be tracked on the Safety and Occupational Health Deficiency Tracking Log, which will be posted at the project safety and health bulletin board located in an area commonly</p>



2 – AHA – MOBILIZATION / STAGING OF EQUIPMENT

		used by employees. For sites where a fixed support area is not available, the log will be maintained by the SSHO and be readily available to all on-site personnel.
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# Activity Hazard Analysis # 3

Activity/Work Task: Fueling Operations		Overall Risk Assessment Code (RAC) (Use highest code)				M										
Project Location: Site 19 And 27 NSF Indian Head, MD		<b>Risk Assessment Code (RAC) Matrix</b>														
Contract Number: N62470-08-D-1007 Task Order No. JU46		<b>Severity</b>	<b>Probability</b>													
Date Prepared: 1-31-2011			Frequent	Likely	Occasional	Seldom	Unlikely									
Prepared by (Name/Title): Mike Harrison CHST/OHST		Catastrophic	E	E	H	H	M									
		Critical	E	E	H	M	L									
Reviewed by (Name/Title):		Marginal	E	M	M	L	L									
		Negligible	M	L	L	L	L									
<b>Notes:</b> (Field Notes, Review Comments, etc.)		Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above)														
		"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely.														
		"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible														
		Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.														
		<table border="1"> <tr> <td colspan="2"><b>RAC Chart</b></td> </tr> <tr> <td>E = Extremely High Risk</td> <td></td> </tr> <tr> <td>H = High Risk</td> <td></td> </tr> <tr> <td>M = Moderate Risk</td> <td></td> </tr> <tr> <td>L = Low Risk</td> <td></td> </tr> </table>					<b>RAC Chart</b>		E = Extremely High Risk		H = High Risk		M = Moderate Risk		L = Low Risk	
<b>RAC Chart</b>																
E = Extremely High Risk																
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<b>Job Steps</b>	<b>Hazards</b>	<b>Controls</b>					<b>RAC</b>									
Fueling operations.	Exposures to fuels.	<ul style="list-style-type: none"> <li>Personnel shall periodically review the Material Safety Data Sheets (MSDS) for the fuels that are being used at the project.</li> <li>The handling and use of fuels shall be performed in well ventilated areas – preferably outside of buildings.</li> <li>Personnel shall avoid skin and eye contact with fuels. Safety glasses and disposable nitrile gloves shall be worn while handling fuels. A small eyewash bottle shall be <u>readily</u> available when fueling equipment. If personnel get fuel in their eyes, then the eyes shall be irrigated with the entire contents of the eye wash bottle and then the employee shall seek medical assistance. If personnel sustain skin contact with fuels, then the affected area shall be immediately washed with soap and water. If fuel contact with clothing is made, then clothing shall be removed and changed immediately.</li> </ul>					L									
	Fire: extinguisher requirements.	<ul style="list-style-type: none"> <li>A 2-A: 40-B fire extinguisher shall be <u>readily</u> available when fueling equipment at any location on site. Trucks with flammable/combustible fuels must be equipped with a 20-B:C fire extinguisher. Personnel who intend to extinguish small fires shall be trained in the use of fire extinguishers. Equipment and property are of secondary concern in a fire situation - personnel shall never try to extinguish a fire if there is any doubt that it can be extinguished safely.</li> </ul>					L									

Job Steps	Hazards	Controls		RAC
Fueling operations (continued).	Fire: elimination of ignition sources – hot surfaces.	<ul style="list-style-type: none"> <li>All vehicles and equipment shall be shut down prior to fueling. Small equipment, such as generators, mowers, pressure washers, etc. shall be allowed to cool prior to re-fueling. Heavy equipment with the fuel cap near the engine or near other hot surfaces shall also be allowed to cool prior to re-fueling.</li> </ul>		M
	Fire: elimination of ignition sources – arcs/sparks/open flames.	<ul style="list-style-type: none"> <li>Smoking shall not be allowed within 50 feet of fueling operations. Personnel shall visually survey the immediate area for open flames and other ignition sources prior to commencing fueling operations. Personnel are prohibited from using cell-phones or two-way radios during all fueling operations.</li> </ul>		L
	Fire: elimination of ignition sources – static electricity.	<ul style="list-style-type: none"> <li>Personnel shall never fill portable fuel cans that are in the bed of a pickup truck or in the trunk of an automobile. Filling fuel containers on plastic pickup truck bed-liners can cause static electric discharges, which may ignite the fuel. The fuel can(s) shall be removed from the truck bed or automobile trunk and placed on the ground before adding fuel.</li> <li>Electrical continuity shall be maintained between the portable fuel can and the tank being filled. A bonding cable shall be used to maintain continuity between the metal fuel container and the equipment fuel tank. Allowing free-fall of fuel into the tank is prohibited.</li> <li>Personnel shall not re-enter vehicles while fueling is underway due to the static electric charge generated between clothing and vehicle seats. If you absolutely have to get in your vehicle while the gas is pumping, make sure you get out, close the door touching the metal, before you pull the nozzle out. This way the static from your body will be discharged before you remove the nozzle.</li> </ul>		L
	Storage and transportation: five-gallon cans in pick-up trucks.	<ul style="list-style-type: none"> <li>Gasoline shall be stored and transported in properly marked/labeled five-gallon safety cans (equipped with self-venting cap and flash arrestor). Gasoline cans shall be secured to prevent movement during transportation.</li> <li>No more than six - five gallon containers of gasoline may be transported in vehicles (back of pick-up trucks or trailers) at the same time unless all the Department of Transportation (DOT) Hazardous Material Regulations are complied with, such as proper packaging, completing shipping papers, placarding (as required), and the appropriate HM 126 Training (as well as having been provided emergency response information and training.) The total quantity of hazardous</li> </ul>		L

Job Steps	Hazards	Controls	RAC
		materials may never exceed 440 pounds total. Hazardous materials must be secured prior to transporting.	
	Communication of hazards.	<ul style="list-style-type: none"> <li>Drivers must be notified that they are transporting hazardous materials. Drivers shall review MSDS for the fuels transported in their vehicle.</li> </ul>	L
Fueling operations (continued).	Storage of fuels on-site.	<ul style="list-style-type: none"> <li>Portable safety gasoline cans must be stored within a flammable materials storage area, have appropriate warning signs, be posted as "No Smoking", and have a fire extinguisher available in the area.</li> </ul>	M
	Spills.	<ul style="list-style-type: none"> <li>All spills shall be immediately cleaned-up. Spill control equipment shall be readily available. All spills shall be reported to the Site Safety and Health Officer.</li> </ul>	M
	Storage and transportation: safety containers and saddle tanks in pick-up trucks.	<ul style="list-style-type: none"> <li>Gasoline shall not be transported in portable saddle tanks – only diesel fuel shall be transported in saddle tanks. All portable saddle tanks mounted in pick-up trucks shall be manufactured to meet DOT specifications. Portable saddle tanks shall be securely mounted to the pick-up truck, as recommended by the manufacturer.</li> <li>Saddle tanks shall be properly marked (see 49 Code of Federal Regulation 172.101) with the proper shipping name and labeled for "No Smoking."</li> <li>No more than 110 gallons of diesel fuel may be transported in a saddle tank unless all the DOT Hazardous Material Regulations are complied with, such as proper packaging, completing shipping papers, placarding, and the appropriate HM 126 Training (as well as having been provided emergency response information and training.)</li> </ul>	L
	Bulk storage of diesel fuel on-site.	<ul style="list-style-type: none"> <li>Caps on saddle tanks shall be securely closed. Saddle tanks shall be inspected weekly to check for leaks.</li> <li>Bulk storage tanks shall not be permitted on site without express permission from the Shaw Project Manager and Health and Safety Manager.</li> </ul>	M

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
<p>Personal Protective Equipment - Level D:</p> <p>Hard Hat Safety Glasses Safety-Toed Boots Disposable nitrile gloves ANSI Class 2 reflective warning vests</p> <p>Equipment:</p> <p>Fire Extinguishers Saddle tanks Bonding cable Eye wash bottle Five-gallon safety cans (equipped with self-venting cap and flash arrestor)</p>	<p>Competent Person (CP) / Qualified Person (QP):</p> <ul style="list-style-type: none"> <li>– CP/SSHO</li> <li>– Alternate CP</li> <li>– QP/First Aid and CPR</li> <li>– QP/First Aid and CPR</li> </ul> <p>Training Requirements:</p> <p>Bonding techniques Materials of Trade Hazard communication - Review MSDS for fuels Portable fire extinguisher use Lifting/back safety</p>	<p>Daily site safety inspection (SSHO) - Daily site safety inspection (QCO) –</p> <p>Survey area for ignition sources (prior to commencing fueling operations) Verify MSDSs for fuels are available in vehicles transporting fuels Saddle tanks (daily) Verify eye wash bottle is readily available Fire extinguisher (before fueling equipment)</p>

# Activity Hazard Analysis (AHA) # 4

Activity/Work Task: Clearing and Grubbing	Overall Risk Assessment Code (RAC)				<b>M</b>	
Project Location: Site 19and 27 NSF Indian Head, MD	<b>Risk Assessment Code (RAC) Matrix</b>					
Contract Number: N62470-08-D-1007; Task Order No. JU46	<b>Severity</b>	<b>Probability</b>				
Date Prepared: 1-31-2011		Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by: Mike Harrison CHST/OHST	Catastrophic	E	E	H	H	<b>M</b>
	Critical	E	H	H	<b>M</b>	<b>L</b>
Reviewed by:	Marginal	H	<b>M</b>	<b>M</b>	<b>L</b>	<b>L</b>
	Negligible	<b>M</b>	<b>L</b>	<b>L</b>	<b>L</b>	<b>L</b>
<b>Notes:</b> (activity description) Clearing and grubbing will consist of felling trees, the removal of stumps, and removal of all vegetation. The trees will be cut to lengths, mulched/chipped, and stockpiled on-site for future use during restoration activities as onsite landscaping cover or as otherwise directed by the Navy RPM. The stumps/root stock will be disposed of with contaminated soils at a permitted solid waste disposal facility.		Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above)				
		"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.			<b>RAC Chart</b>	
		"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible			<b>E = Extremely High Risk</b> <b>H = High Risk</b> <b>M = Moderate Risk</b> <b>L = Low Risk</b>	
		Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.				
<b>Job Steps</b>	<b>Hazards</b>	<b>Controls</b>				<b>RAC</b>
Mobilizing all vegetation removal equipment to site.	Vehicle/equipment accidents.	<ul style="list-style-type: none"> <li>Inspect area around equipment before backing.</li> <li>Survey route to work locations. Inform crew of hazards.</li> <li>Stay off roadways and watch for vehicle in the area. Use flashers when needed.</li> </ul>				<b>L</b>
	Carrying heavy materials and equipment.	<ul style="list-style-type: none"> <li>Wear reflective vest when exposed to heavy equipment or traffic.</li> <li>Observe maximum manual lifting limit of 60 lbs.</li> <li>Get help for loads greater than 60 lbs.</li> <li>Train for proper lifting techniques.</li> <li>Keep manual loads close to the body while carrying.</li> <li>Use lifting, carrying aids, such as carts or dollies to move heavy objects.</li> </ul>				<b>L</b>
All exclusion zone activities.	Inhalation or ingestion of leaded soil.	<ul style="list-style-type: none"> <li>Use Modified Level D unless air monitoring indicates Level C is needed.</li> <li>Avoid activities that generate airborne dust.</li> <li>Control dust by applying water if necessary.</li> <li>Wash soil from hands prior to eating or drinking.</li> </ul>				<b>L</b>
Preparing for vegetation	Poisonous Insects, bees, wasps,	<ul style="list-style-type: none"> <li>Wear leather or cotton gloves.</li> </ul>				<b>M</b>

Job Steps	Hazards	Controls	RAC
removal.	snakes, spiders, and scorpions.	<ul style="list-style-type: none"> <li>• Wear long pants, long sleeved shirts preferred.</li> <li>• Instruction in recognition and identification of poisonous insects, snakes known to be in the area.</li> <li>• Do not assign hypersensitive employee (e.g., someone with a bee sting allergy) to duties having high risk of exposure.</li> <li>• Be cautious where you put your hands, feet and body. Inspect area for hazards.</li> </ul>	L
	Exposure to severe inclement weather, sun, heat, rain and wind.	<ul style="list-style-type: none"> <li>• Protect skin from ultraviolet rays by wearing your hard hat, long pants, long sleeved shirts, and sunscreen lotion.</li> <li>• Wear clothing / PPE suitable for weather and working conditions.</li> <li>• Keep an eye on your working buddy for signs of heat or cold stress.</li> <li>• Drink fluids and rest when needed.</li> <li>• Monitor Heat/Cold Stress per SEI Procedure HS400/HS401.</li> </ul>	
	Working alone.	<ul style="list-style-type: none"> <li>• Practice buddy system at all times.</li> </ul>	L
Preparing to operate chain saw.	Injury due to faulty equipment.	<ul style="list-style-type: none"> <li>• Competent person shall inspect for safety and operability.</li> <li>• Have repairs made by a qualified repair person.</li> <li>• All chain saws placed in service after Feb. 1995 shall meet all requirements of ANSIB175.1-1991. Chain saw shall be equipped with at least two separate anti-kick-back features. Chain brake, low kick back chain, reduced kick back bar, or nose guard.</li> </ul>	M

<b>Job Steps</b>	<b>Hazards</b>	<b>Controls</b>	<b>RAC</b>
Fueling Chain Saw	Burns from flammable liquids and hot surfaces while fueling chain saw.	<ul style="list-style-type: none"> <li>• Instruction in proper handling, storage and disposal of flammable liquids.</li> <li>• Equipment will be shut down during fueling and servicing activities.</li> <li>• An operable fire extinguisher shall be on site and available during refueling.</li> <li>• Allow engine to cool down before refueling.</li> <li>• Use a funnel or flexible hose fitting to the container when fueling saws.</li> <li>• Clear the area around fueling site of flammable material before fueling.</li> <li>• Do not start the saw within a 10 foot radius of the fuel container.</li> </ul>	<b>M</b>
Operating Chain Saw	Injury from flying debris.	<ul style="list-style-type: none"> <li>• Operator to wear proper PPE including face shields, safety glasses, hard hats, leather gloves, leather chaps, steel toed boots and long sleeved shirts. If the proper PPE is not available, do not proceed with task.</li> <li>• Inspect work area for hazardous conditions and debris before starting task. Remove all loose items not intended to be cut.</li> <li>• Do not allow other personnel in area without proper PPE.</li> <li>• All safe guards will remain installed and properly used.</li> </ul>	<b>M</b>
	Excessive noise.	<ul style="list-style-type: none"> <li>• Use ear plugs or muffs while operating chain saw.</li> </ul>	<b>L</b>
	Unsafe terrain, slip, trip, fall hazards.	<ul style="list-style-type: none"> <li>• Properly support material on ground for cutting or use saw bucks.</li> <li>• Keep engine free of saw dust.</li> <li>• Keep cutting speed under control to avoid cutting too deep or at an improper angle.</li> <li>• Stop the saw when doubtful about safety.</li> <li>• Prior to chain saw work all slopes and work areas will be thoroughly inspected for washes, potholes, or other surface irregularities that could cause you to slip, trip or fall.</li> <li>• Prior to chain saw work areas will be cleared of brush, rocks, fencing, and other obstacles which might hinder movement.</li> </ul>	<b>M</b>



Job Steps	Hazards	Controls	RAC
Operating chain saw (continued).	Unsafe terrain, slip, trip, fall hazards (continued).	<ul style="list-style-type: none"> <li>• Always establish good footing.</li> <li>• Keep personnel clear from areas of falling trees or rolling logs.</li> <li>• Be alert for nails, wire, metal taps, in trees.</li> <li>• When moving with a saw, it should be grasped firmly in one hand and carried at the side with the bar pointing backwards. Special caution is necessary when the engine is running. Chain break should be engaged during transport.</li> <li>• Look to the side before turning around. Face and hearing protection and engine noise will limit the operator's ability to know if someone is close.</li> <li>• Secure racks, boxes, bar holsters or sheathing, or other means shall be used for transporting chain saw.</li> <li>• Maintain good housekeeping; keep walkways clear of tools, materiel, and debris.</li> </ul>	L
Preparing to operate weed eater.	Equipment failure.	<ul style="list-style-type: none"> <li>• Competent person to inspect equipment prior to use. No equipment will be placed in service until all deficiencies are corrected.</li> <li>• Have repairs made by a qualified repairperson.</li> <li>• Know your equipment and follow the manufacturer's operating manual instructions.</li> </ul>	L
Fueling weed eater.	Burns from flammable liquids and hot surfaces while fueling weed eater.	<ul style="list-style-type: none"> <li>• Instruction in proper handling, storage and disposal of flammable liquids.</li> <li>• Equipment will be shut down during fueling and servicing activities.</li> <li>• An operable fire extinguisher shall be on site and available during refueling.</li> <li>• Allow engine to cool down before refueling.</li> </ul>	L
Replacing cutting line in weed eater.	Cuts, abrasions while replacing weed eater cutting line.	<ul style="list-style-type: none"> <li>• Turn the power off to the equipment before replacing the cutting line.</li> <li>• Make sure cutting line is installed according to manufacturer's instruction.</li> </ul>	L
Operating weed eater.	Injury from flying debris.	<ul style="list-style-type: none"> <li>• Operator to wear proper PPE, including face shields, safety glasses hard hats, leather gloves, steel toed boots and long sleeved shirts, and ear protectors.</li> <li>• Inspect work area for hazardous conditions and debris before starting task. Remove all loose items not intended to be cut.</li> <li>• Do not allow other personnel in area without proper PPE.</li> <li>• All safe guards will remain installed and properly used.</li> </ul>	M
	Excessive noise.	<ul style="list-style-type: none"> <li>• Use ear plugs or muffs while operating weed eater.</li> </ul>	L

<b>Job Steps</b>	<b>Hazards</b>	<b>Controls</b>	<b>RAC</b>
Operating weed eater (continued).	Cuts and abrasions from moving parts.	<ul style="list-style-type: none"> <li>• Never put your hands, feet or other body parts in the path of the moving parts.</li> <li>• Do not point the cutting end at anyone.</li> <li>• Keep the cutting edge pointed down at all times.</li> <li>• All safe guards will remain installed and properly used.</li> <li>• Beware of your surroundings at all times watch what you are cutting.</li> </ul>	<b>L</b>
	Slips, trips, and falls.	<ul style="list-style-type: none"> <li>• Inspect work areas for washes, potholes, or other surface irregularities that could cause slips, trips or falls.</li> <li>• Prior to chain saw work areas will be cleared of brush, rocks, fencing, and other obstacles which might hinder movement.</li> <li>• Always establish good footing.</li> <li>• Keep personnel clear from areas of falling trees or rolling logs.</li> <li>• Be alert for nails, wire, metal taps, in trees.</li> </ul>	<b>M</b>
Preparing to operate mower with tractor.	Faulty mower, tractor.	<ul style="list-style-type: none"> <li>• Inspect equipment prior to use. No equipment will be placed in service until all deficiencies are corrected.</li> <li>• Have repairs made by a qualified repairperson.</li> <li>• Know your equipment, follow the manufacture operating manual.</li> </ul>	<b>L</b>
Fueling tractor.	Burns from flammable liquids and hot surfaces while fueling tractor.	<ul style="list-style-type: none"> <li>• Instruction in proper handling, storage and disposal of flammable liquids.</li> <li>• Equipment will be shut down during fueling and servicing activities.</li> <li>• An operable fire extinguisher shall be on site and available during refueling.</li> <li>• Allow engine to cool down before refueling.</li> </ul>	<b>L</b>
Operating mower with tractor.	Falling from tractor.	<ul style="list-style-type: none"> <li>• Wear seat belt at all times.</li> <li>• Do not attempt to get off the equipment until it has come to a complete stop and motor is shut off and the brake set.</li> <li>• Do not allow passengers at any time.</li> <li>• All safe guards will remain installed and properly used.</li> <li>• Use three point contact system when getting on and off the equipment.</li> <li>• Keep steps and decks free of mud, oil and grease.</li> </ul>	<b>M</b>
	Sharp objects, lacerations, cut or abrasions.	<ul style="list-style-type: none"> <li>• Wear cut resistant work gloves.</li> <li>• Inspect work area and equipment for hazardous conditions and correct before continuing work.</li> <li>• Wear hard hats, steel toed boots, eye protection, long sleeved shirts and pants, and abrasion resistant gloves.</li> <li>• Keep guards in place during use. Stay clear of moving parts.</li> </ul>	<b>L</b>

Job Steps	Hazards	Controls	RAC
Operating mower with tractor (continued).	Excessive noise.	<ul style="list-style-type: none"> <li>Use ear plugs or muffs while operating mower.</li> </ul>	L
	Struck by/against, protruding objects.	<ul style="list-style-type: none"> <li>Do not approach equipment while in operation.</li> <li>Require backup alarms on all heavy equipment.</li> <li>Make eye contact with operators before approaching equipment.</li> <li>Understand and review hand signals.</li> </ul>	M
	Unsafe terrain.	<ul style="list-style-type: none"> <li>Prior to mowing, all slopes and work areas will be thoroughly inspected for washes, potholes, or other surface irregularities that could cause the mower to overturn.</li> <li>Prior to mowing work areas will be checked for debris. Items will be removed or their location flagged. Do not attempt mow over debris.</li> </ul>	L
	Fire hazards near dry vegetation.	<ul style="list-style-type: none"> <li>Keep fire extinguisher nearby and be prepared to use it.</li> </ul>	M
Changed or unanticipated conditions.	Safety or health hazards that may be derived from changed or unanticipated conditions.	<ul style="list-style-type: none"> <li>Modify the AHA as often as necessary to address new or unanticipated hazards. Use SEI procedure HS045 "Job Safety Analysis" to facilitate field documentation.</li> </ul>	L

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Modified Level D – Tyvek® coveralls with booties, safety boots, hearing protection , face shield, safety glasses and abrasion resistant gloves, ear protection Chain saw Leather chaps for chain saw operators Tractor/mower Weed eater Fire extinguisher	Competent Person (CP) / Qualified Person (QP):  _____ – CP/SSHO _____ – Alternate CP _____ – QP/First Aid and CPR _____ – QP/First Aid and CPR _____ – QP/Heavy equipment operator _____ – CP/Heavy equipment inspector  Training Requirements: Site-specific orientation Operator must be trained in the safe operation of the equipment to be used; including the manufacturer's operating manual instructions. HAZWOPER 40 hr HAZWOPER 8 hour refresher Lead Awareness Training First Aid Tailgate Safety Meeting	Competent person shall inspect equipment prior to each use. No equipment will be placed in service until all deficiencies are corrected.  Complete Shaw's equipment inspection form



# Activity Hazard Analysis # 5

Activity/Work Task: Soil and Debris Excavation and Load-Out		Overall Risk Assessment Code (RAC) (Use highest code)				<b>M</b>	
Project Location: Site 19 and 27 NSF Indian Head, MD		<b>Risk Assessment Code (RAC) Matrix</b>					
Contract Number: N62470-08-D-1007 Task Order No. JU46		<b>Severity</b>	<b>Probability</b>				
Date Prepared: 1-30-2011			Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name/Title): Mike Harrison CHST/OHST			Catastrophic	E	H	H	M
			Critical	E	H	M	L
Reviewed by (Name/Title):			Marginal	M	M	L	L
		Negligible	M	L	L	L	L
<b>Notes:</b> (Field Notes, Review Comments, etc.)		Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above)					
		"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely.				<b>RAC Chart</b>	
		"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible				E = Extremely High Risk	
		Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.				M = Moderate Risk	
						L = Low Risk	
<b>Job Steps</b>	<b>Hazards</b>	<b>Controls</b>				<b>RAC</b>	
Arrival of new personnel at site.	Unfamiliarity with: site, general site hazards, project safety rules, chain of command, and emergency procedures.	<ul style="list-style-type: none"> <li>All personnel shall attend the site orientation training.</li> </ul>				<b>M</b>	
Excavation and load-out of soil and debris.	Poor planning.	<ul style="list-style-type: none"> <li>Complete Job Safety Analysis for each task, as specified in Shaw Environmental &amp; Infrastructure, Inc. Procedure No. HS045, "Job Safety Analysis (JSA)." Use Hazard Assessment Resolution Program frequently – for each task to be completed.</li> </ul>				<b>M</b>	
	Heavy lifting, strains, and sprains.	<ul style="list-style-type: none"> <li>No individual employee is permitted to lift any object that weighs over 60 pounds. Proper lifting techniques shall be used. Multiple employees or the use of mechanical lifting devices are required for lifting objects over the 60-pound limit.</li> </ul>				<b>M</b>	
	Intrusive activities and underground utilities.	<ul style="list-style-type: none"> <li>Follow procedure for Intrusive Activities Permit in Accident Prevention Plan (APP) prior to commencing excavation activities. Shaw E &amp; I Procedure No. HS308, "Underground/Overhead Utility Contact Prevention," shall be followed. The Ohio Utilities Protection Service shall be contacted prior to any intrusive activities.</li> </ul>				<b>M</b>	

<b>Job Steps</b>	<b>Hazards</b>	<b>Controls</b>		<b>RAC</b>
Excavation and load-out of soil and debris (continued).	Overhead hazards/utilities.	<ul style="list-style-type: none"> <li>Overhead hazards shall be evaluated prior to moving equipment on the project site. Overhead power lines shall be shut-off and locked-out. Areas with overhead hazards shall be barricaded with caution tape to prevent contact. In areas where it is not feasible to use barricades, spotters shall be provided; however, the minimum distances from electrical lines must be observed.</li> </ul>		<b>M</b>
	Chemical contamination.	<ul style="list-style-type: none"> <li>Set up work zones and personnel washing facilities. Personal protective equipment (PPE) shall be worn as required. Perform air monitoring as specified in the Site Safety and Health Plan (SSHP). Personnel shall wash hands and face before eating, drinking, smoking, or chewing.</li> </ul>		<b>L</b>
	Slips, trips, and falls.	<ul style="list-style-type: none"> <li>Keep work areas clear and maintain housekeeping. Personnel shall not jump from elevated surfaces. Personnel shall use caution when walking on rocky, slippery, or uneven terrain.</li> </ul>		<b>M</b>
	Hand injuries.	<ul style="list-style-type: none"> <li>Items to be handled shall be inspected for sharp edges prior to being handled. Personnel shall wear leather gloves when handling sharp materials. Personnel shall be aware of and avoid pinch point hazards.</li> </ul>		<b>L</b>
	Use of heavy equipment.	<ul style="list-style-type: none"> <li>Only qualified personnel shall be permitted to operate equipment. Heavy equipment shall be inspected daily after the initial U.S. Army Corps of Engineers inspection (and documented.) Do not use unsafe equipment. All equipment shall have backing alarms. All equipment shall be operated at safe speeds and in a safe manner. Equipment operators shall wear safety belts. Personnel are only permitted to approach equipment after a signal from the operator. Ground personnel, working near heavy equipment, shall wear high visibility conspicuity vests. Ground personnel shall not enter the swing radius of equipment. Ground personnel shall not position themselves between equipment and stationary objects. Personnel shall verify all mechanical guards are in place and functioning properly. Moving equipment shall be equipped with a back-up alarm. All equipment shall be shut down with energies dissipated prior to performing maintenance activities - lock out/tag out procedures may apply. Only qualified mechanics shall work on or repair heavy equipment.</li> </ul>		<b>M</b>

<b>Job Steps</b>	<b>Hazards</b>	<b>Controls</b>	<b>RAC</b>
Excavation Competent Person:	Excavations.	<ul style="list-style-type: none"> <li>Excavations shall be inspected daily. Perimeter protection shall be provided when excavation is unattended. Protective systems (sloping) shall be provided as necessary if excavation is greater than four-foot deep and personnel must enter. Air monitoring shall be performed prior to entering excavations.</li> </ul>	<b>M</b>
Excavation and load-out of soil and debris (continued).	Insect bites/West Nile Virus.	<ul style="list-style-type: none"> <li>Wear PPE and tape joints to keep insects away from the skin. Use protective insect repellents containing N,N-Diethyl-m-toluamide, such as, 3M Ultrathon or equivalent and clothing insecticide preparations containing permethrins (Repel Permanone or equivalent) to prevent insect bites. Check limbs/body for insects/insect bites before showering. Notify Site Safety and Health Officer (SSHO) of flu-like symptoms.</li> </ul>	<b>L</b>
	Contact dermatitis and poison ivy.	<ul style="list-style-type: none"> <li>Check around work areas to identify if poison ivy is present. Wear long-sleeve shirts/trousers or Tyvek® coveralls to avoid skin contact with plants or other skin irritants. Learn to identify poisonous plants.</li> <li>Avoid unnecessary clearing of plant/vegetation areas.</li> <li>Cover vegetation with plastic (visqueen) where sampling position raises exposure potential. Apply protective cream/lotion to exposed skin to prevent poison ivy or similar reactions. Identify workers who are known to contract poison ivy.</li> </ul>	<b>L</b>
	Severe weather.	<ul style="list-style-type: none"> <li>The SSHO will monitor weather conditions each day in order to plan and prepare for hazardous conditions. The SSHO will identify a suitable tornado shelter at each work location. Work activities will be suspended prior to weather conditions becoming hazardous so that workers have ample time to seek shelter. Upon seeing lightning or hearing thunder, outdoor activities shall be suspended and personnel shall be evacuated to safe areas (inside vehicles, buildings, or tornado shelters as appropriate). Follow procedures outlined in the APP.</li> </ul>	<b>L</b>
	Hazardous atmospheres.	<ul style="list-style-type: none"> <li>Personnel shall immediately notify the SSHO if odors are detected.</li> </ul>	<b>L</b>
	Heat stress and cold stress.	<ul style="list-style-type: none"> <li>Follow procedures outlined in the SSHP.</li> </ul>	<b>M</b>
	Dust.	<ul style="list-style-type: none"> <li>Dust shall be monitored and controlled. Respiratory protection may be required if dust cannot be adequately controlled.</li> </ul>	<b>L</b>
	Fire.	<ul style="list-style-type: none"> <li>Smoking shall be permitted in designated areas. Vehicles shall not be parked in tall dry grass.</li> <li>Engines shall be shut off before refueling. A 40-B:C fire</li> </ul>	<b>L</b>

Job Steps	Hazards	Controls	RAC
		extinguisher shall be available when refueling. Smoking shall not be permitted near fueling areas. Gasoline shall be stored in safety cans with flash arrestors and spring-loaded vents.	
Excavation and load-out of soil and debris (continued).	Dump truck operations.	<ul style="list-style-type: none"> <li>Dump trucks shall be inspected and found to be in safe condition prior to being placed in service at site. Overhead hazards shall be re-evaluated prior to allowing dump trucks onto the project site. Areas with overhead hazards shall be barricaded with caution tape to prevent dump bed from contacting. In areas where it is not feasible to use barricades, then spotters shall be provided; however, the minimum distances from electrical lines must be observed (see SSHP). Dump trucks shall not be allowed to contact contaminated materials unless proper decontamination will be performed. Dump truck operators shall remain in the truck cab with the windows up while on the project site, unless truck is not equipped with Falling Object Protective Structures. Operators shall wear seat belts while trucks are in motion at the project site. Spotters shall assist trucks when backing is necessary.</li> </ul>	<b>M</b>

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Personal Protective Equipment - Level D / Level D - Modified:  Hard Hat Safety Glasses Safety-Toed Boots Work Gloves ANSI Class 2 reflective warning vests Disposable gloves (nitrile) Disposable boot covers  Equipment:  Fire Extinguishers Emergency Eyewash First Aid Kit Deep-Woods Off or Ultrathon Repel Permanone Drinking water Weather radio or AM/FM radio Hand tools	Competent Person (CP) / Qualified Person (QP):  – CP/SSHO _____ – Alternate CP/SSHO _____ – QP/First Aid and CPR _____ – QP/First Aid and CPR _____ – QP/Heavy equipment operator _____ – CP/Heavy equipment inspector _____  Training Requirements: Site safety orientation HAZWOPER 40-Hour Qualified equipment operators Lifting/back safety Fire extinguisher use Emergency procedures Biological hazard identification and control Tornado shelter locations National Lightning Safety Institute Lightning Safety Procedures	Daily site safety inspection (SSHO) - Daily site safety inspection (QCO) –  Vehicle inspection daily Check Known Allergies Questionnaire Housekeeping (daily) Fire extinguisher (weekly) Vehicle inspection daily Mechanized equipment (U.S. Army Corps of Engineers form prior to use) Overhead and underground utilities Mechanized equipment (daily) Dump trucks (daily) Equipment and tools inspection daily and before use Survey areas for poisonous plants, insects, and animals Check body for ticks Verify tornado shelter available Monitor approaching storms



<p>Heavy equipment  Level C, D, and D – Modified; puncture-proof footwear, Class 2 Reflective vests  Equipment: Decontamination station, water supply, fire extinguishers, excavator, hearing protection, air monitoring instruments</p>		
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## Activity Hazard Analysis (AHA) # 6

Activity/Work Task: Soil Sampling	Overall Risk Assessment Code (RAC) (Use highest code)				<b>M</b>	
Project Location: Site 19 and 27 NSF –Indian Head, MD	<b>Risk Assessment Code (RAC) Matrix</b>					
Contract Number: N62470-08-D-1007 Task Order No. JU46	<b>Severity</b>	<b>Probability</b>				
Date Prepared: 1-30-2011		Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name/Title): Mike Harrison CHST/OHST	Catastrophic	M	H	H	H	M
	Critical	M	H	H	M	L
Reviewed by (Name/Title):	Marginal	M	M	L	L	L
	Negligible	M	L	L	L	L
<b>Notes:</b> (Field Notes, Review Comments, etc.)	Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above)					
	"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely.			<b>RAC Chart</b>		
	"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible			E = Extremely High Risk		
	Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.			H = High Risk		
		M = Moderate Risk				
		L = Low Risk				
<b>Job Steps</b>	<b>Hazards</b>	<b>Controls</b>			<b>RAC</b>	
Arrival of new personnel at site	Unfamiliarity with: site, general site hazards, project safety rules, chain of command, and emergency procedures.	<ul style="list-style-type: none"> <li>All personnel shall attend the site orientation training. Document training at site prior to commencement of work.</li> </ul>			<b>M</b>	
Confirmatory sampling.	Poor planning.	<ul style="list-style-type: none"> <li>Complete Job Safety Analysis for each task, as specified in Shaw Procedure No. HS045, "Job Safety Analysis (JSA)." Use Hazard Assessment Resolution Program frequently – for each task to be completed.</li> </ul>			<b>M</b>	
	Use, sampling equipment, and hand tools.	<ul style="list-style-type: none"> <li>Inspect hand tools and equipment daily and before each use. Remove damaged tools and equipment from service immediately.</li> <li>Work in a manner and pace to reduce strains and overexertion.</li> </ul>			<b>L</b>	
	Use of acidic preservatives (if required).	<ul style="list-style-type: none"> <li>A portable eye wash station shall be readily available in the area where acids are being used. Acids will be used in areas with adequate ventilation. All containers shall be properly labeled. Personnel who sustain skin contact shall immediately wash the affected area with soap and water (eyes should be irrigated for 15 minutes with potable water) and report the incident to the Site Safety and Health Specialist (SSHS).</li> </ul>			<b>L</b>	
	Slips, trips, and falls.	<ul style="list-style-type: none"> <li>Keep work areas clear and maintain housekeeping. Personnel shall not jump from elevated surfaces. Personnel shall use caution when walking on rocky, slippery, or uneven terrain.</li> </ul>			<b>M</b>	

<b>Job Steps</b>	<b>Hazards</b>	<b>Controls</b>	<b>RAC</b>
Confirmatory sampling (continued).	Use of portable generators.	<ul style="list-style-type: none"> <li>Refer to the manufacturer's instructions for safe operation. Never use a generator in enclosed or partially enclosed spaces. Keep the generator dry and do not use in rain or wet conditions.</li> <li>Use a heavy-duty, outdoor rated extension cord that is rated at least equal to the sum of the connected pump loads. Check that the entire cord is free of cuts or tears and the plug has three prongs, including a grounding pin. Check operator's manual for grounding requirements, if any.</li> <li>Use proper lifting techniques when moving portable generators. Use hearing protection when working near a generator</li> <li>A 20-B:C fire extinguisher shall be readily available in locations where a generator is being used. Before refueling, turn off generator and allow to cool. Gasoline spilled on hot engine parts could ignite</li> </ul>	<b>M</b>
	Hand injuries.	<ul style="list-style-type: none"> <li>Items to be handled shall be inspected for sharp edges prior to being handled. Personnel shall be aware of and avoid pinch point hazards. Wear leather gloves when handling sharp materials.</li> </ul>	<b>L</b>
	Insect bites/West Nile Virus.	<ul style="list-style-type: none"> <li>Wear PPE and tape joints to keep insects away from the skin. Use protective insect repellents containing N,N-Diethyl-m-toluamide, such as, 3M Ultrathon or equivalent and clothing insecticide preparations containing permethrins (Repel Permanone or equivalent) to prevent insect bites. Check limbs/body for insects/insect bites before showering. Notify SSHS of flu-like symptoms.</li> </ul>	<b>L</b>
	Contact dermatitis and poison ivy.	<ul style="list-style-type: none"> <li>Check around work areas to identify if poison ivy is present. Wear long-sleeve shirts/trousers or Tyvek® coveralls to avoid skin contact with plants or other skin irritants. Learn to identify poisonous plants.</li> <li>Avoid unnecessary clearing of plant/vegetation areas.</li> <li>Cover vegetation with plastic (visqueen) where sampling position raises exposure potential. Apply protective cream/lotion to exposed skin to prevent poison ivy or similar reactions. Identify workers who are known to contract poison ivy.</li> </ul>	<b>L</b>
	Severe weather.	<ul style="list-style-type: none"> <li>The SSHS will monitor weather conditions each day in order to plan and prepare for hazardous conditions. The SSHS will identify a suitable tornado shelter at each work location. Work activities will be suspended prior to weather conditions becoming hazardous so that workers have ample time to seek shelter. Upon seeing lightning or hearing thunder, outdoor activities shall be suspended and personnel shall be evacuated to safe areas (inside vehicles, buildings, or tornado shelters as appropriate). Follow procedures in the APP.</li> </ul>	<b>L</b>
Confirmatory sampling (continued)	Heat stress and cold stress.	<ul style="list-style-type: none"> <li>Follow procedures outlined in the SHSP.</li> </ul>	<b>M</b>

Job Steps	Hazards	Controls	RAC
	Hazardous atmospheres.	<ul style="list-style-type: none"> <li>Perform air monitoring as specified in the SHSP.</li> <li>Apply engineering controls as necessary to limit exposures.</li> <li>Upgrade level of PPE based upon air monitoring action limits specified in the SHSP.</li> <li>Personnel shall immediately notify the HSM if odors are detected.</li> </ul>	L
	Noise	<ul style="list-style-type: none"> <li>Wear hearing protection when working near pressure washers, compressors, or generators to reduce noise exposure to below OSHA limits.</li> </ul>	L
	Fire.	<ul style="list-style-type: none"> <li>Smoking shall be permitted in designated areas. Vehicles shall not be parked in tall dry grass.</li> <li>Provide 20-B:C fire extinguishers at sampling locations.</li> <li>Do not start gas-powered equipment in fueling area (at least 10 feet away).</li> <li>Store gasoline in safety cans with flash arrestors and spring loaded vents.</li> </ul>	M

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Personal Protective Equipment - Level D - Modified:  Hard Hat Safety Glasses Safety-Toed Boots Work Gloves Chemical splash goggles (when working with acidic preservatives) Disposable gloves (nitrile)  Equipment:  Fire Extinguishers Emergency Eyewash First Aid Kit Drinking water NOAA Weather radio Air monitoring instruments Ventilation equipment (fan) as needed Heavy duty extension cords Class 2 Reflective vests	Competent Person (CP) / Qualified Person (QP):  CP/SSHS _____ Alternate CP/SSHS _____ QP/First Aid and CPR _____ QP/First Aid and CPR _____ QP/equipment operator _____  Training Requirements:  Site safety orientation HAZWOPER 40-Hour Lifting/back safety Fire extinguisher use Emergency procedures Biological hazard identification and control	Daily site safety inspection (SSHS) - _____ Daily site safety inspection (QP) - _____  Check Known Allergies Questionnaire Housekeeping (daily) Fire extinguisher (weekly) Vehicle inspection daily Equipment and tools inspection daily and before use Survey areas for poisonous plants, insects, and animals Monitor approaching storms

# Activity Hazard Analysis (AHA) # 7

Activity/Work Task: Equipment Decontamination		Overall Risk Assessment Code (RAC) (Use highest code)				<b>M</b>	
Project Location: Site 19 and 27 NSF Indian Head, MD		<b>Risk Assessment Code (RAC) Matrix</b>					
Contract Number: N62470-08-D-1007 Task Order No. JU46		<b>Severity</b>	<b>Probability</b>				
Date Prepared: 1-30-2011			Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name/Title): Mike Harrison CHST/OHST		Catastrophic	E	E	H	H	M
		Critical	E	E	H	M	L
Reviewed by (Name/Title):		Marginal	E	M	M	L	L
		Negligible	M	L	L	L	L
<b>Notes:</b> (Field Notes, Review Comments, etc.)		Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above)					
		"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely.					<b>RAC Chart</b>
		"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible					E = Extremely High Risk H = High Risk M = Moderate Risk L = Low Risk
		Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.					
<b>Job Steps</b>	<b>Hazards</b>	<b>Controls</b>				<b>RAC</b>	
Clean Equipment.	Failure to properly plan daily activities.	<ul style="list-style-type: none"> <li>Complete Job Safety Analysis for each task, as specified in Shaw Environmental &amp; Infrastructure, Inc. (Shaw E &amp; I) Procedure No. HS045, "Job Safety Analysis (JSA)." Use Hazard Assessment Resolution Program frequently – for each task to be completed.</li> </ul>				<b>M</b>	
	Exposure to contaminants.	<ul style="list-style-type: none"> <li>Maintain work zones and decontamination areas. Level D - Modified personal protective equipment shall be worn as required in the Accident Prevention Plan or Site Safety and Health Plan. Personnel shall perform proper decontamination procedures each time when exiting the Exclusion Zone.</li> </ul>				<b>L</b>	
	Poor lighting.	<ul style="list-style-type: none"> <li>Additional lighting shall be put in place as necessary. Temporary lighting shall be protected with ground fault circuit interrupters (GFCI).</li> </ul>				<b>L</b>	
	Slips, trips, and falls.	<ul style="list-style-type: none"> <li>Work areas shall be kept organized during work activities. Housekeeping shall be maintained. Personnel shall use caution when walking/working on wet surfaces.</li> </ul>				<b>M</b>	

<b>Job Steps</b>	<b>Hazards</b>	<b>Controls</b>	<b>RAC</b>
Clean Equipment (continued).	Electrical.	<ul style="list-style-type: none"> <li>GFCIs shall be used on all power tools and extension cords. Extension cords, power tools, and lighting equipment shall be inspected before each use, protected from damage, and kept out of wet areas.</li> </ul>	<b>M</b>
	Heavy lifting.	<ul style="list-style-type: none"> <li>No individual employee is permitted to lift any object that weighs over 60 pounds. Proper lifting techniques shall be used. Multiple employees or the use of mechanical lifting devices are required for lifting objects over the 60-pound limit.</li> </ul>	<b>M</b>
	Noise.	<ul style="list-style-type: none"> <li>Personnel shall wear hearing protection when operating pressure washer.</li> </ul>	<b>L</b>
	Fire.	<ul style="list-style-type: none"> <li>Fire extinguishers shall be placed in work areas. Smoking shall only be allowed in designated areas.</li> </ul>	<b>L</b>
	Heat Stress.	<ul style="list-style-type: none"> <li>Personnel shall drink plenty of cool water. Personnel shall pace themselves while performing strenuous work and take adequate breaks in a cool area.</li> </ul>	<b>M</b>
	Use of pressure or steam washer.	<ul style="list-style-type: none"> <li>The pressure/steam washer shall be inspected before each use. The manufacturer's instruction manual shall be used to guide the inspection process. Personnel shall be trained in the use of the washing equipment. All personnel working in the equipment decontamination area shall be trained in the emergency shut-off procedures for the equipment being used. The minimum amount of steam/pressure that will complete the job should be used. Pressure washers exceeding 3000 psi shall not be used without the approval of the Health and Safety Manager. The spray from such equipment shall only be directed at surfaces to be cleaned and never at body parts or other personnel.</li> <li>Personnel in the immediate area shall use face shields and metatarsal/shin guards. Personnel shall keep firm grip on wand and not point it at anything that is not being washed. Pressure washer operators must maintain good footing. The trigger on the wand shall never be wired/fixed open. Operators are to take adequate breaks to avoid fatigue.</li> <li>Hot surfaces shall be avoided. Units shall be shut off and allowed to cool prior to re-fueling (if gas-powered).</li> <li>Carbon monoxide shall be monitored if gas-powered pressure washers are used. Carbon monoxide concentrations shall not be allowed to exceed 25 parts per million within any indoor areas.</li> </ul>	<b>L</b>

Job Steps	Hazards	Controls	RAC
	Spills of decontamination water.	<ul style="list-style-type: none"> <li>All waste handling activity shall be performed on visqueen (polyethylene sheeting) lined work surfaces. Waste liquids shall be stored with secondary containment. Lids and bungs shall be secured when drums are in storage or are being moved. Spill cleanup equipment shall be readily available when handling wastes. Drums containing waste shall be inspected on a daily basis. Spills shall be immediately reported to the Site Safety and Health Officer.</li> </ul>	L

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
Personal Protective Equipment - Level D - Modified:  Hard Hat Safety Glasses Safety-Toed Boots Work Gloves Vinyl rain-gear Protective over-boots Hearing protection  Equipment:  GFCI Fire Extinguishers Emergency Eyewash First Aid Kit Drinking water Weather radio or AM/FM radio Spill control equipment	Competent Person (CP) / Qualified Person (QP):  – CP/SSHO/UXOSO – Alternate CP/SSHO/SUXOS – QP/First Aid and CPR – QP/First Aid and CPR  Training Requirements:  Site safety orientation HAZWOPER 40-Hour MEC Awareness Lifting/back safety Fire extinguisher use Emergency procedures National Lightning Safety Institute Lightning Safety Procedures	Daily site safety inspection (SSHO) - Daily site safety inspection (QCO) –  Housekeeping (daily) Fire extinguisher (weekly) Equipment and tools inspection daily and before use Monitor approaching storms

# meActivity Hazard Analysis #8

Activity/Work Task: Site Restoration	Overall Risk Assessment Code (RAC) (Use highest code)		<b>M</b>				
Project Location: Sites 19 and 27, NSF Indian Head, MD	<b>Risk Assessment Code (RAC) Matrix</b>						
Contract Number: N62470-08-D-1007, Task Order No. JU46	<b>Severity</b>	<b>Probability</b>					
Date Prepared: 1-31-2010		Frequent	Likely	Occasional	Seldom	Unlikely	
Prepared by (Name/Title): Mike Harrison CHST/OHST		Catastrophic	E	H	H	H	M
		Critical	E	H	H	M	L
Reviewed by (Name/Title):		Marginal	E	M	M	L	L
	Negligible	M	L	L	L	L	
<b>Notes:</b> (Field Notes, Review Comments, etc.)		Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above)					
		"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely.			<b>RAC Chart</b>		
		"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible			E = Extremely High Risk		
		Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.			H = High Risk		
					M = Moderate Risk		
			L = Low Risk				

Job Steps	Hazards	Controls	RAC
Arrival of new personnel at site.	Unfamiliarity with: site, general site hazards, project safety rules, chain of command, and emergency procedures.	<ul style="list-style-type: none"> <li>All personnel shall attend the site orientation training.</li> </ul>	<b>M</b>
Restore site.	Poor planning.	<ul style="list-style-type: none"> <li>Complete Job Safety Analysis for each task, as specified in Shaw E&amp;I Procedure No. HS045, "Job Safety Analysis (JSA)." Use Hazard Assessment Resolution Program frequently – for each task to be completed.</li> </ul>	<b>M</b>
	Heavy lifting, strains, and sprains.	<ul style="list-style-type: none"> <li>No individual employee is permitted to lift any object that weighs over 60 pounds. Proper lifting techniques shall be used. Multiple employees or the use of mechanical lifting devices are required for lifting objects over the 60-pound limit.</li> </ul>	<b>M</b>
	Intrusive activities and underground utilities.	<ul style="list-style-type: none"> <li>Follow procedure for Intrusive Activities Permit in Accident Prevention Plan (APP) prior to commencing excavation activities. Shaw E&amp;I Procedure No. HS308, "Underground/Overhead Utility Contact Prevention."</li> </ul>	<b>M</b>
	Overhead hazards/utilities.	<ul style="list-style-type: none"> <li>Overhead hazards shall be evaluated prior to moving equipment on the project site. Overhead power lines shall be shut-off and locked-out. Areas with overhead hazards shall be barricaded with caution tape to prevent contact. In areas where it is not feasible to use barricades, spotters shall be provided; however, the minimum distances from electrical lines must be observed.</li> </ul>	<b>M</b>



Job Steps	Hazards	Controls	RA
Restore site (continued).			
	Slips, trips, and falls.	<ul style="list-style-type: none"> <li>Keep work areas clear and maintain housekeeping. Personnel shall not jump from elevated surfaces. Personnel shall use caution when walking on rocky, slippery, or uneven terrain.</li> </ul>	M
	Hand injuries.	<ul style="list-style-type: none"> <li>Items to be handled shall be inspected for sharp edges prior to being handled. Personnel shall wear leather gloves when handling sharp materials. Personnel shall be aware of and avoid pinch point hazards.</li> </ul>	L
	Use of heavy equipment.	<ul style="list-style-type: none"> <li>Only qualified personnel shall be permitted to operate equipment. Heavy equipment shall be inspected daily. Do not use unsafe equipment. All equipment shall have backing alarms. All equipment shall be operated at safe speeds and in a safe manner. Equipment operators shall wear safety belts. Personnel are only permitted to approach equipment after a signal from the operator. Ground personnel, working near heavy equipment, shall wear high visibility conspicuity vests. Ground personnel shall not enter the swing radius of equipment. Ground personnel shall not position themselves between equipment and stationary objects. Personnel shall verify all mechanical guards are in place and functioning properly. Moving equipment shall be equipped with a back-up alarm. All equipment shall be shut down with energies dissipated prior to performing maintenance activities - lock out/tag out procedures may apply. Only qualified mechanics shall work on or repair heavy equipment.</li> </ul>	M
	Insect bites/West Nile Virus.	<ul style="list-style-type: none"> <li>Wear PPE and tape joints to keep insects away from the skin. Use protective insect repellents containing N,N-Diethyl-m-toluamide, such as, 3M Ultrathon or equivalent and clothing insecticide preparations containing permethrins (Repel Permanone or equivalent) to prevent insect bites. Check limbs/body for insects/insect bites before showering. Notify Site Safety and Health Officer (SSHO) of flu-like symptoms.</li> </ul>	L
	Contact dermatitis and poison ivy.	<ul style="list-style-type: none"> <li>Check around work areas to identify if poison ivy is present. Wear long-sleeve shirts/trousers or Tyvek® coveralls to avoid skin contact with plants or other skin irritants. Learn to identify poisonous plants.</li> <li>Avoid unnecessary clearing of plant/vegetation areas.</li> <li>Cover vegetation with plastic (visqueen) where sampling position raises exposure potential. Apply protective cream/lotion to exposed skin to prevent poison ivy or similar reactions. Identify workers who are known to contract poison ivy.</li> </ul>	L

SSO Steps	Hazards	Controls	RA
Restore site (continued).	Severe weather.	<ul style="list-style-type: none"> <li>The SSO will monitor weather conditions each day in order to plan and prepare for hazardous conditions. The SSO will identify a suitable tornado shelter at each work location. Work activities will be suspended prior to weather conditions becoming hazardous so that workers have ample time to seek shelter. Upon seeing lightning or hearing thunder, outdoor activities shall be suspended and personnel shall be evacuated to safe areas (inside vehicles, buildings, or tornado shelters as appropriate). Follow procedures outlined in the APP.</li> </ul>	L
	Hazardous atmospheres.	<ul style="list-style-type: none"> <li>Personnel shall immediately notify the SSO if odors are detected.</li> </ul>	L
	Heat stress and cold stress.	<ul style="list-style-type: none"> <li>Follow procedures outlined in the Site Safety and Health Plan (SSHP).</li> </ul>	M
	Dust.	<ul style="list-style-type: none"> <li>Dust shall be monitored and controlled. Respiratory protection may be required if dust cannot be adequately controlled.</li> </ul>	L
	Fire.	<ul style="list-style-type: none"> <li>Smoking shall be permitted in designated areas. Vehicles shall not be parked in tall dry grass.</li> <li>Engines shall be shut off before refueling. A 40-B:C fire extinguisher shall be available when refueling. Smoking shall not be permitted near fueling areas. Gasoline shall be stored in safety cans with flash arrestors and spring-loaded vents.</li> </ul>	L
	Dump truck operations.	<ul style="list-style-type: none"> <li>Dump trucks shall be inspected and found to be in safe condition prior to being placed in service at site. Overhead hazards shall be re-evaluated prior to allowing dump trucks onto the project site. Areas with overhead hazards shall be barricaded with caution tape to prevent dump bed from contacting. In areas where it is not feasible to use barricades, then spotters shall be provided; however, the minimum distances from electrical lines must be observed (see SSHP). Operators shall wear seat belts while trucks are in motion at the project site. Spotters shall assist trucks when backing is necessary.</li> </ul>	M
	Use of fertilizers.	<ul style="list-style-type: none"> <li>The material safety data sheet for fertilizers shall be read and understood. Personnel shall avoid contact with fertilizer.</li> </ul>	L

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
<p>Personal Protective Equipment - Level D:</p> <p>Hard Hat Safety Glasses Safety-Toed Boots Work Gloves ANSI Class 2 reflective warning vests</p> <p>Equipment:</p> <p>Fire Extinguishers Emergency Eyewash First Aid Kit Deep-Woods Off or Ultrathon Repel Permanone Drinking water Weather radio or AM/FM radio</p>	<p>Competent Person (CP) / Qualified Person (QP):</p> <p>– CP/SSHO_____</p> <p>– Alternate CP/SSHO_____</p> <p>– QP/First Aid and CPR_____</p> <p>– QP/First Aid and CPR_____</p> <p>– QP/Heavy equipment operator_____</p> <p>– CP/Heavy equipment inspector_____</p> <p>Training Requirements:</p> <p>Site safety orientation Applicable AHAs HAZWOPER 40-Hour Qualified equipment operators Lifting/back safety Fire extinguisher use Emergency procedures Biological hazard identification and controls</p>	<p>Daily site safety inspection (SSHO) - Daily site safety inspection (QCO) –</p> <p>Overhead and underground utilities Housekeeping (daily) Fire extinguisher (weekly) Vehicle inspection daily Equipment and tools inspection daily and before use Survey areas for poisonous plants, insects, and animals Check body for ticks Verify tornado shelter available</p>

## Activity Hazard Analysis #9

Activity/Work Task: <b>Demobilization</b>	Overall Risk Assessment Code (Use highest code)					<b>M</b>
Project Location: Sites 19 and 27 NSF Indian Head, MD	<b>Risk Assessment Code (RAC) Matrix</b>					
Contract Number: N62470-08-D-1007 Task Order No. JU46	<b>Hazard Severity</b>	<b>Hazard Probability</b>				
Date Prepared: 1-31-2010		Frequent level A	Likely level B	Occasional level C	Seldom level D	Unlikely level E
Prepared by (Name/Title): Mike Harrison CHST/OHST	Catastrophic (I) – death, system loss, or severe environmental damage	<b>E</b>	<b>E</b>	<b>H</b>	<b>H</b>	<b>M</b>
	Critical (II) – disabling injury, major system or environmental damage	<b>E</b>	<b>H</b>	<b>H</b>	<b>M</b>	<b>L</b>
Reviewed by (Name/Title):	Marginal (III) – recordable injury, minor system or environmental damage	<b>H</b>	<b>M</b>	<b>M</b>	<b>L</b>	<b>L</b>
	Negligible (IV) – first aid, minor system impairment	<b>M</b>	<b>L</b>	<b>L</b>	<b>L</b>	<b>L</b>
Notes: (Field Notes, Review Comments, etc.)	Step 1: Review each <b>“Hazard”</b> with identified safety <b>“Controls”</b> and determine RAC (See above)					
	“ <b>Probability</b> ” is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.				<b>RAC Chart</b>	
	“ <b>Severity</b> ” is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible				<b>E = Extremely High Risk</b>	
	Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each “Hazard” on AHA. Annotate the overall highest RAC at the top of AHA.				<b>H = High Risk</b>	
					<b>M = Moderate Risk</b>	
				<b>L = Low Risk</b>		

aPrincipal Steps	Hazards	Recommended Controls	RAC
All activities.	Noise.	<ul style="list-style-type: none"> <li>All personnel shall wear earplugs whenever equipment is operating or powered hand tools are used.</li> </ul>	L
	Struck by vehicular traffic.	<ul style="list-style-type: none"> <li>A traffic control plan shall be prepared and implemented when working on or adjacent to roadways.</li> <li>All personnel shall wear Class 2 High visibility clothing when exposed to vehicle or equipment traffic.</li> </ul>	M
	Sprains and strains from heavy lifting or overexertion.	<ul style="list-style-type: none"> <li>No individual employee is permitted to lift any object that weighs over 60 pounds.</li> <li>If working on a slope, personnel shall not carry a load in excess of 30 lbs.</li> <li>Multiple employees or the use of mechanical lifting devices are required for lifting objects over the 60-pound limit.</li> <li>Personnel shall use proper lifting techniques such as keeping back straight, lifting with legs, limiting twisting, and getting help in moving bulky/heavy materials and equipment.</li> </ul>	M

## ACTIVITY HAZARD ANALYSIS

ACTIVITY

Demobilization

ANALYZED BY / DATE

M. Harrison / 1/31/2010

REVIEWED BY / DATE

aPrincipal Steps	Hazards	Recommended Controls	RAC
All activities (continued).	Slips, trips, and falls.	<ul style="list-style-type: none"> <li>Workers shall inspect area for uneven terrain, slopes, obstructions and watch for objects that may protrude from the ground and create a trip hazard.</li> <li>Personnel shall take extra precautions, such as establishing firm handholds, wearing suitable footwear, and walking slowly when walking on wet, rocky, or uneven terrain.</li> <li>Remove debris from walkways and mark other trip hazards.</li> <li>Stairways, walkovers, or ramps shall be installed where personnel must walk or step over equipment.</li> <li>Fall protection is required for all personnel working ≥6 feet above the ground surface in accordance with Shaw Procedure HS-301, <i>Fall Protection</i>.</li> <li>Maintain good housekeeping.</li> <li>Maintain proper illumination in work areas.</li> <li>Personnel shall not jump from elevated surfaces</li> </ul>	M
	Injury from use of power and hand tools.	<ul style="list-style-type: none"> <li>Personnel shall maintain a steady pace when using tools and take adequate rest periods.</li> <li>Tools shall be appropriate for the task and maintained in good condition.</li> <li>Inspect all power and hand tools before each use.</li> <li>Only trained and authorized personnel will use hand and power tools.</li> <li>Keep electric cords untangled and out of the way of rotating tools.</li> <li>Use pneumatic or double-insulated power tools when possible.</li> <li>Protect electric tools with ground fault circuit interrupters (GFCI).</li> <li>Minimum PPE will include safety glasses with side-shields, hard hat, safety-toed work boots, and cut-resistant gloves.</li> <li>Items to be handled shall be inspected for sharp edges prior to being handled.</li> </ul>	M
	Electrical shock.	<ul style="list-style-type: none"> <li>Extension cords, power tools, and lighting equipment shall be inspected before each use, protected from damage, and kept out of wet areas.</li> <li>Electrical cords and wiring shall be kept clear of walking areas, roads, and/or covered, buried, or otherwise secured.</li> <li>Monitor weather conditions. Outdoor/field operations shall cease during electrical storms or when lightning is observed in the area.</li> </ul>	M
	Hand injuries (cuts/lacerations).	<ul style="list-style-type: none"> <li>Items to be handled shall be inspected for sharp edges prior to being handled.</li> <li>Personnel shall wear leather gloves when handling sharp materials.</li> <li>Personnel shall be aware of and avoid pinch point hazards.</li> </ul>	M

## ACTIVITY HAZARD ANALYSIS

ACTIVITY

Demobilization

ANALYZED BY / DATE

M. Harrison / 1/31/2010

REVIEWED BY / DATE

aPrincipal Steps	Hazards	Recommended Controls	RAC
All activities (continued).	Biological hazards/Bites/Allergic reactions.	<ul style="list-style-type: none"> <li>Employees shall be instructed on the identification and avoidance of snakes, poisonous plants, and insects.</li> <li>Use insect repellents containing DEET to prevent insect bites.</li> <li>Wear long-sleeved shirts/trousers or Tyvek coveralls to avoid skin contact with prolonged sun exposure, plants, or other skin irritants.</li> <li>Wear sunscreen and re-apply frequently as needed.</li> </ul>	L
	Heat/cold stress.	<ul style="list-style-type: none"> <li>Monitor for heat stress in accordance with Shaw E &amp; I Procedure No. HS400, "Heat Stress" and the requirements of the SSHP.</li> <li>Monitor for cold stress in accordance with Shaw E &amp; I Procedure No. HS401, "Cold Stress" and the requirements of the SSHP.</li> <li>Drink plenty of water and minimal carbonated or caffeine-containing beverages.</li> <li>Personnel shall take required breaks to cool down/warm-up as needed.</li> <li>Personnel shall wear insulated clothing based the ambient temperature and wind chill conditions.</li> </ul>	M
	Fire.	<ul style="list-style-type: none"> <li>Smoking is permitted in designated areas only.</li> <li>Limit and control ignition sources.</li> <li>Shut off all engines and allow to cool before refueling.</li> <li>Provide 20-B:C fire extinguisher in each work area (minimum).</li> <li>A 20-B:C fire extinguisher shall be available during refueling and a 40-B:C fire extinguisher shall be available at established refueling areas.</li> <li>Do not smoke near fueling areas.</li> <li>Do not start gas-powered equipment in fueling area (at least 10 feet away).</li> <li>Store gasoline in safety cans with flash arrestors and spring-loaded vents.</li> </ul>	M
Installing or disconnecting electrical to office trailer.	Electrical shock.	<ul style="list-style-type: none"> <li>All electrical work shall comply with National Electric Code standards and the arc-flash PPE requirements of NFPA 70E.</li> <li>Only qualified electricians shall wire electrical connections.</li> <li>Implement lockout/tagout procedures.</li> <li>Plan the placement of any overhead wires at a sufficient height and keep away from equipment travel locations.</li> </ul>	M

## APPENDIX C

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### *HAZARDOUS CHEMICAL INVENTORY LIST AND MATERIAL SAFETY DATA SHEETS (MSDSs)*

***NOTE: MSDSs for all materials are included on CD in this Work Plan and a paper copy provided in the field copy of this SSHP maintained onsite.***



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## APPENDIX D

### *SHAW HEALTH AND SAFETY PROCEDURES*

***The following Shaw Health and Safety procedures are included on CD in this Work Plan and a paper copy will be provided in the field copy of this SSHP maintained onsite.***

<b>Policy Number</b>	<b><i>Shaw Environmental &amp; Infrastructure Standard Operating Procedures</i></b>
HS001	<i>Environmental Health &amp; Safety Policy</i>
HS002	<i>Occupational Health and Safety Management System (SMS)</i>
HS003	<i>Philosophy for Procedures</i>
HS009	<i>New Employee Health and Safety Orientation Requirements</i>
HS010	<i>Employee Health and Safety Manual</i>
HS011	<i>Health &amp; Safety Rules for Contractors</i>
HS012	<i>Chemical Hygiene Plan</i>
HS013	<i>Health and Safety Procedure Variance</i>
HS014	<i>Severe Weather Policy and Procedures</i>
HS018	<i>Safety Councils</i>
HS019	<i>Injury and Illness Prevention Program</i>
HS020	<i>Accident Prevention Program: Reporting, Investigation, and Review</i>
HS021.a	<i>Accident Prevention Program: Tier 1, Sr. Management, Leadership Safety Assessments</i>
HS021.b	<i>Accident Prevention Program: Tier 2 Management Safety Inspections</i>
HS021.c	<i>Accident Prevention Program: Management Safety Inspections</i>
HS022	<i>Accident Prevention Program: Review of New Proposals, Projects, Operations, Construction, and Jobs by Health and Safety</i>
HS023	<i>Accident Prevention Program: Employee Safety Incentives &amp; Team Safety Award Program</i>
HS024	<i>Prevention of Repetitive Motion Injuries (Applies to California Only)</i>
HS025	<i>Workplace Anti-Violence Policy</i>
HS026	<i>Safety Observation Program</i>
HS040	<i>Stop Work Authority</i>
HS041	<i>Embryo-Fetus Protection Program</i>
HS045	<i>Job Safety Analysis (JSA)</i>
HS050	<i>Employee and Subcontractor Training Requirements</i>
HS051	<i>Tailgate Safety Meetings</i>
HS052	<i>Health and Safety Plans</i>
HS060	<i>Hazard Communication Program</i>
HS062	<i>Hazardous Waste Operations (RCRA)</i>
HS090	<i>Occupational Safety and Health Administration (OSHA) Regulatory Inspections</i>
HS091	<i>Reporting of Fatality or Multiple Hospitalization Incidents</i>
HS100	<i>Medical Policies and Procedures</i>
HS101	<i>Drug and Alcohol Testing</i>
HS102	<i>Management of Employee Exposure and Medical Records</i>

<b>Policy Number</b>	<b><i>Shaw Environmental &amp; Infrastructure Standard Operating Procedures</i></b>
HS104	<i>Employee Notification of Industrial Hygiene Monitoring Results</i>
HS106	<i>Medical Services &amp; First Aid</i>
HS300	<i>Confined Spaces</i>
HS301	<i>Fall Protection</i>
HS302	<i>Portable Ladder Safety</i>
HS303	<i>Pressurized Water Cleaning and Cutting Equipment</i>
HS304	<i>Compressed Gas Cylinders</i>
HS306	<i>Handling Compressed Gas Cylinders with Unknown Contents</i>
HS307	<i>Excavation and Trenching</i>
HS308	<i>Underground/Overhead Utility Contact Prevention 2/20/2006</i>
HS309	<i>Underground Storage Tank Removal</i>
HS312	<i>Electrical Safety</i>
HS313	<i>Fire Protection</i>
HS314	<i>Hot Work</i>
HS315	<i>Control of Hazardous Energy and Hazardous Material Sources (Lockout/Tagout)</i>
HS316	<i>Drill Rig Operations</i>
HS317	<i>Munitions and Explosives of Concern (MEC)</i>
HS400	<i>Heat Stress</i>
HS401	<i>Cold Stress</i>
HS402	<i>Hearing Conservation Program</i>
HS403	<i>Fatigue Management</i>
HS500	<i>OSHA Regulated Toxic and Hazardous Substances</i>
HS501	<i>Cadmium Compliance Plan</i>
HS502	<i>Lead Compliance Plan</i>
HS503	<i>Benzene Compliance Plan</i>
HS504	<i>Asbestos Compliance Plan</i>
HS505	<i>Hexavalent Chromium Protection</i>
HS512	<i>Handling of Blood or Other Potentially Infectious Material</i>
HS600	<i>Personal Protective Equipment</i>
HS601	<i>Respiratory Protection Program</i>
HS700	<i>Policy &amp; Guidance For Developing Radiation Protection Plans</i>
HS800	<i>Motor Vehicle Operation: General Requirements</i>
HS810	<i>Commercial Motor Vehicle Regulations and DOT Compliance</i>
HS811	<i>Compliance Requirements for DOT's Emergency Response Information Telephone Number</i>
HS820	<i>Forklift Operation</i>
HS822	<i>Crane Operations</i>
HS823	<i>Rigging &amp; Lifting</i>

**APPENDIX E**

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***SHAW HEALTH AND SAFETY FORMS***

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APPENDIX F  
*HURRICANE PREPAREDNESS PLAN*



## HURRICANE PREPAREDNESS PLAN

# **REMOVAL ACTIONS AT SITES 19 AND 27 NAVAL SUPPORT FACILITY, INDIAN HEAD INDIAN HEAD, MARYLAND**

CONTRACT NO. N62470-08-D-1007

**Prepared for:**

**Naval Facilities Engineering Command Washington**

1314 Harwood Street, S.E.

Washington Navy Yard, DC 20374-5018

**Prepared by:**

**Shaw Environmental and Infrastructure, Inc.**

500 East Main Street, Suite 1630

Norfolk, Virginia 23510

TASK ORDER JU46  
SHAW PROJECT NO. 140662

FEBRUARY 2011

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## LIST OF ATTACHMENTS

Attachment A	Hurricane Preparedness Plan Acknowledgement
Attachment B	Emergency Phone Numbers
Attachment C	Hurricane Preparedness Responsibility Checklists
Attachment D	Hurricane Tracking Map

*ACRONYMS AND ABBREVIATIONS*

COR	Condition of Readiness
FEMA	Federal Emergency Management Administration
HPP	Hurricane Preparedness Plan
KO	Contracting Officer
mph	Miles per Hour
Navy	U.S. Department of the Navy
NOAA	National Oceanic and Atmospheric Administration
NSN	Naval Station Norfolk
PPE	Personal Protective Equipment
PM	Project Manager
QC	Quality Control
SSO	Site Safety Officer
SS	Site Superintendent



## 1.0 INTRODUCTION

### 1.1 PURPOSE

This Hurricane Preparedness Plan (HPP) outlines the general responsibilities and actions to be taken in preparation for and response to a hurricane or hurricane warnings at Naval Support facility, Indian Head, MD. All personnel should understand that predicting the occurrence and path of a hurricane is difficult, however the risk can be minimized and controlled by following the procedures in this plan. The information provided in the HPP was developed in accordance with updated information provided by the U.S. Department of the Navy (Navy) in a Memorandum titled, *2010 Hurricane Season Preparation* (Navy, 2010)

### 1.2 SCOPE

This procedure is applicable to all site personnel, including subcontractors; temporary construction facilities; and remediation equipment present at the project site.

### 1.3 DISCUSSION

This procedure provides information on how to protect personnel and property in the event of a hurricane. In the Indian Head, MD area, attention must be paid to all hurricanes, since there is no way to determine with 100 percent accuracy whether a hurricane will actually hit the area until a few hours before landfall.

The following table demonstrates that the accuracy of forecasting where a hurricane landfall will occur is very low more than 24 hours in advance of a storm.

Hours Before Landfall	Maximum Probability Values
72 Hours	10 Percent
48 Hours	13-18 Percent
36 Hours	20-25 Percent
24 Hours	35-45 Percent
12 Hours	60-70 Percent

## 2.0 DEFINITIONS

The following definitions apply to various terms used in this document.

### Conditions of Readiness (COR):

**Condition FOUR** - Destructive winds are possible at the project site within 72 hours (Sustained winds of 93 km/hr 50 knots or greater expected within 72 hours): Normal daily jobsite cleanup and good housekeeping practices. Collect and store in piles or containers scrap lumber, waste material, and rubbish for removal and disposal at the close of each work day. Maintain the construction site including storage areas, free of accumulation of debris. Stack form lumber in neat piles less than 4 feet high. Remove all debris, trash, or objects that could become missile hazards. Contact Contracting Officer (KO) for updates and completion of required actions

**Condition THREE**- Destructive winds are possible at the site within 48 hours (Sustained winds of 93 km/hr 50 knots or greater expected within 48 hours): Maintain Condition FOUR requirements and commence securing operations necessary for Condition ONE which cannot be completed within 18 hours. Cease all routine activities which might interfere with securing operations. Commence securing and stow all gear and portable equipment. Make preparations for securing buildings. Review requirements pertaining to Condition TWO and continue action as necessary to attain Condition THREE readiness. Contact the KO for weather and COR updates and completion of required actions

**Condition TWO** - Destructive winds are anticipated at the site within 24 hours (Sustained winds of 93 km/hr 50 knots or greater expected within 24 hours): Curtail or cease routine activities until securing operation is complete. Reinforce or remove form work and scaffolding. Secure machinery, tools, equipment, materials, or remove from the jobsite. Expend every effort to clear all missile hazards and loose equipment from general base areas. Contact KO for weather and COR updates and completion of required actions.

**Condition ONE** - Destructive winds are anticipated at the site within 12 hours. Secure the jobsite, and leave Government premises (Sustained winds of 93 km/hr 50 knots or greater expected within 12 hours).

Rule of thumb: If two men can load it and carry it away, have your workers do so.

**Destructive Winds** - Generally winds reaching or exceeding the force of a tropical storm (> 39 miles per hour [mph] or 34 knots). Winds from any storm system (tropical or otherwise) that are determined to have the potential to cause property damage or personal injury that would warrant a Condition FOUR alert.

**Gale** - Non-tropical windstorm with winds 38 to 63 mph (33 to 55 knots).

**Hurricane Watch** - An announcement for specific areas where a hurricane or an incipient hurricane poses a possible threat to a coastal area, generally within 36 hours.

**Hurricane Warning** - A warning that sustained winds of 74 mph (64 knots) or higher, associated with a hurricane are expected in a specified coastal area in 24 hours or less.

**Hurricane** - A tropical cyclone in which the maximum sustained surface wind is 74 mph (64 knots) or greater.

**Missile Hazard** – A missile hazard is any object which might become airborne in high winds. For example, while concrete jersey barriers will stay in place in all but the most brutal winds, plastic jersey barriers will need to be either removed or filled with sand or water. Barrel barricades will also need to be filled with either water or sand or removed.

**Severe Weather** - Any storm of tropical or non-tropical origin that has the capacity to produce destructive winds.

**Small Area Storms** – Thunderstorms or tornadoes.

**Small Area Storms Condition ONE** - Destructive winds, heavy rain, lightening and hail are imminent within 1-hour.

**Small Area Storms Condition TWO** - Destructive winds, heavy rain, lightening and hail are expected within 6-hours.

**Storm** - Non-tropical windstorm with winds 38 to 63 mph (33 to 55 knots).

**Storm Surge** - An abnormal rise in sea level accompanying a hurricane or other intense storm, and whose height is the difference between the observed level of the sea surface and the level that would have occurred in the absence of the storm.

**Storm Tide** - The actual sea level resulting from the astronomical tide combined with the storm surge. This term is used interchangeably with "Hurricane Tide."

**Tornado** - Violent rotating columns of air with winds 115 to 288 mph (100 to 250 knots).

**Tropical Depression** - A tropical cyclone with winds up to 38 mph (33 knots) or less.

**Tropical Storm** - A tropical cyclone in which the maximum surface wind ranges from 39 to 73 mph (34 to 63 knots) inclusive. This is the strength at which the National Hurricane Center applies a name to the storm.

**Tropical Storm Watch** - Tropical storm conditions pose a threat to a coastal area generally within 36 hours.

**Tropical Storm Warning** - A warning for tropical storm conditions with sustained winds within the range of 39 to 73 mph (34 to 63 knots) that are expected in a specified coastal area within 24 hours or less.

### **3.0 RESPONSIBILITIES**

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#### **3.1 PROJECT MANAGER – STEVE CARRIERE**

The Project Manager (PM) is responsible for ensuring that all adequate measures have been taken to prepare for hurricanes and to protect site personnel and property in the event of a hurricane. The PM will ensure that ample resources are available to implement this plan and that all personnel are aware of this plan and their responsibilities.

#### **3.2 SITE SUPERINTENDENT- BRIAN HARRIS**

The Site Superintendent (SS) will communicate all hurricane information to site personnel and keep the site personnel continually informed of the measures to be taken. The SS is responsible for the coordination and direction of site equipment shut down and will oversee the preparation of site facilities for any imminent storm. The SS will oversee the coordination of both pre and post storm operations and will ensure that the proper material, equipment, and supplies are utilized to implement this procedure.

#### **3.3 SITE SAFETY OFFICER- MICHAEL HART**

The Site Safety Officer (SSO) will monitor weather information, including the National Weather Service probability values for landfall. The SSO will maintain the necessary emergency supplies, and will periodically tour the site to ensure that proper steps are being taken to protect site personnel and property. The SSO will develop the emergency contact list will be maintained in a site dedicated vehicle.

Note: When personnel identified in **Section 3.0** leave the site, they are responsible for notifying the SS or a designated back up person. The back up person will be instructed in their responsibilities in the event of a hurricane.

#### **3.4 EMERGENCY CONTACT INFORMATION**

The list of emergency telephone numbers is included as **Attachment B**, Emergency Telephone Numbers.

## **4.0 EMERGENCY OPERATING PROCEDURES**

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### **Condition FOUR - (Destructive winds are possible within 72 Hours)**

This COR starts when severe weather is within 72 hours of posing a threat to the project location. The SSO will ensure that the following steps are taken:

- Monitor the storm and inform the PM of its progress.
- Check Personal Protective Equipment (PPE) supplies and equipment to determine if any shipments are required or if pending shipments should be advanced or postponed.

During Condition FOUR, the progress of the storm will be continuously monitored and tracked. The SS will instruct site personnel to begin general cleanup of all loose materials that may pose a hazard during high winds or rain. This will include removal of all debris, trash, and other items that may become missile hazards. All lumber will be stacked in neat piles less than four feet high. The PM will be contacted at least twice daily for COR Requirement updates and to be informed of completion of required actions for Condition FOUR.

The SS will keep all site personnel advised of the status of the storm and site preparation activities. Due to the urgency and amount of work involved in preparing for a threatening storm, all construction operations that might interfere with securing operations, such as starting a major excavation, will cease.

The SS will ensure that the following steps are taken:

- Fill fuel tanks in all equipment on site,
- Secure stockpiled material on site,
- Review requirements for Condition TWO with all site personnel, and
- Maintain Condition FOUR requirements.

See **Attachment C** for the Hurricane Preparedness Responsibility Checklist - Condition FOUR.

### **Condition THREE - Tropical Storm Warning (Destructive winds are possible within 48 Hours)**

This COR starts when severe weather places the project site under a tropical storm warning. Condition THREE activities will also start if a threatening tropical storm is upgraded to a hurricane, or a severe storm approaching the site has generated destructive winds in other

locations. The PM, SS and SSO will determine when to cease all operations based upon current weather conditions and/or as directed by the Navy. If the storm or COR is downgraded, the PM and SS will meet with the Program Manager and Navy to decide if a downgrade of the COR is appropriate. Actions for Condition THREE will be maintained and the following shall also be completed:

- Machinery, tools, equipment, and materials will be secured or removed from the site and
- Take actions to secure job-site necessary for Condition TWO that cannot be completed within 18 hours.

See **Attachment C** for the Hurricane Preparedness Responsibility Checklist - Condition THREE.

**Condition TWO – (Destructive Winds are possible within 24 hours or a Small Area Storm is possible within 6 hours).**

Condition TWO begins when destructive winds are anticipated within 24 hours, a small area storm within 6 hours, and/or as directed by the NAVY. The PM and SS will determine when to demobilize from the site based upon weather conditions. During this phase the SS will direct the following actions:

- Secure machinery, tools, equipment and materials or remove them from the job-site,
- Conduct a roll call of personnel on site and inform the SSO,
- Notify personnel on leave of schedule changes,
- Personnel needing to leave the project to attend to personal matters will notify their SS immediately,
- Heavy equipment will be secured according to the manufacturer's recommendations,
- All small field equipment will be secured,
- All stockpiles will be covered and secured,
- All visitors from the site are evacuated,
- Make a final site walk through to determine that the site is secure and clear all missile hazards from the job-site, and
- Inform the PM that all personnel are being released from the site.

If the storm or COR is downgraded, the PM and SS will meet to decide if a downgrade of the phase is necessary.

See **Attachment C** for the Hurricane Preparedness Responsibility Checklist - Condition TWO.

**Condition ONE - (Destructive winds are anticipated within 12 hours or a Small Area Storm is imminent within 1 hour)**

- Complete all remaining actions required for lower conditions of readiness and
- Secure job-site access and evacuate to safe refuge.

See **Attachment C** for the Hurricane Preparedness Responsibility Checklist - Condition ONE.

**Resume Site Operations**

The PM will contact the Program Manager to determine when site operations will resume. Although the hurricane/severe weather has passed, hazards may still exist because of water damage, other hazardous conditions, dangers from electric shock, poisonous snakes, etc.

The SS and SSO will conduct a damage survey with the PM. Photographs of the storm damage at the site will be taken by the SS or SSO. They will develop a prioritized recovery plan from the survey findings. Subsequently, all site personnel will be notified when it is safe to return to work. Required personnel and subcontractor expertise will be mobilized to the site to repair any damaged equipment.

See **Attachment C** for the Hurricane Preparedness Responsibility Checklist - Resume Site Operations.



## *5.0 DEBRIEFING*

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Following the return to work of site personnel, the SS will conduct a debriefing with site personnel. The debriefing will accomplish the following objectives:

- Finalize a recovery plan,
- Review the HPP for effectiveness,
- Suggest and agree on improvements to the plan, and
- Incorporate plan changes.

When completed, the PM and SS will meet with site personnel to discuss any corrective actions or changes in this plan.

## 6.0 REFERENCES

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The following references and sources of information may be consulted for additional guidance on hurricane preparedness and response.

- Federal Emergency Management Administration (FEMA), Protecting Your Property or Business from Disaster <http://www.fema.gov/plan/prevent/howto/index.shtm>
- National Oceanic and Atmospheric Administration (NOAA), National Hurricane Center <http://www.nhc.noaa.gov/>
- Naval Facilities Engineering Command, 2010, *Memorandum: 2010 Hurricane Season Preparation*.
- US Army Corps of Engineers, 2008, *Safety and Health Requirements Manual, EM 385-1-1*, Washington, D.C., September 15.
- [www.stormpulse.com/pacific](http://www.stormpulse.com/pacific)

# ATTACHMENT A

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## *HURRICANE PREPAREDNESS PLAN ACKNOWLEDGEMENT*



***Hurricane Preparedness Plan***  
**Removal Actions at Sites 19 and 27**  
**Naval Support Facility Indian Head, Indian Head, MD.**

<b>Emergency Telephone Numbers</b>	
Local Agencies Police Ambulance Fire	301-744-4333
<b><u>Hospital</u></b> Civista Medical Center 701 E. ST. Charles Street LaPlata MD	(301) 609-4000
<b><u>CORE Health Networks Clinic</u></b> Convenient Health Care 12090 Old Line Center Waldorf ,MD	(301) 843-3888
<b><i>See Figure 9-1 and 9-2 of the SHSP for directions to the hospital and clinic.</i></b>	
National Poison Control Information Center	(800) 222-1212
Center for Disease Control / National Response Center	(800) 232-4636
Navy Personnel:  RPM – Nathan DeLong  FEAD – Cathy Gardner	(202) 685-3279  (301) 744-2181
Shaw Personnel:  Project Manager – Steve Carriere Site Superintendent – Brian Harris SSHO – Michael Hart Program Safety Manager - James Joice, CIH, CSP, CHMM  Program CIH – Dave Mummert	(609) 234-6361 (Cellular) (757) 846-4423 (Cellular) (757) 613-1754 (Cellular) (419) 306-3637 (Cellular) (419) 424-4960 (Office) (419) 348-1544 (Cellular) (419) 425-6129 (Office)
Shaw E & I Help Desk (24 hour)	(866) 299-3445

## ATTACHMENT C

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### *HURRICANE PREPAREDNESS RESPONSIBILITY CHECKLISTS*

**Condition FIVE  
(Early Preparedness)**

**Date/Time Entered Condition FIVE:** \_\_\_\_\_

**Severe Weather/Tropical Storm:** \_\_\_\_\_

**Action Items:**

- ☐ Notify Project Manager
- ☐ Track of Storm Poses No Threat
- ☐ Storm or Condition is Downgraded
- ☐ Upgrade to Condition FOUR

**Storm Location**

**Date/Time:** \_\_\_\_\_

**Date/Time:** \_\_\_\_\_

**Location/Coordinates:** \_\_\_\_\_

**Location/Coordinates:** \_\_\_\_\_

**Date/Time:** \_\_\_\_\_

**Date/Time:** \_\_\_\_\_

**Location/Coordinates:** \_\_\_\_\_

**Location/Coordinates:** \_\_\_\_\_

**Condition V Action Items Complete:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Condition FOUR**  
**(Destructive Winds are possible within 72 hours)**

**Date/Time Entered Condition FOUR:** \_\_\_\_\_

**Action Items:**

- ☐ Notify Project Manager.
- ☐ Notify Site Personnel.
- ☐ Assemble shift personnel to begin preparation.
- ☐ Track storm on hurricane tracking map (**Attachment C**) (if applicable).
- ☐ Secure all heavy equipment located at the site in accordance with manufacturer's specifications. All equipment will be moved to a secured site location.
- ☐ All equipment fuel tanks will be filled.
- ☐ All subcontractors with equipment or supplies on-site will be notified to begin removal procedures.

**Condition FOUR Action Items Complete:** \_\_\_\_\_

**Date:** \_\_\_\_\_



**Condition THREE**  
**(Destructive Winds are possible within 48 hours)**

**Date/Time Entered Condition THREE:** \_\_\_\_\_

**Action Items:**

- ☐ Provide the status of the storm to site personnel on an hourly basis.
- ☐ Take actions to secure job-site necessary for Condition ONE that cannot be accomplished in 18 hours.
- ☐ Recheck all items on checklist FOUR to ensure they are complete (i.e. gas tanks are still filled).

See itemized equipment checklist (itemized list of equipment to be secured/removed and COR for action)

**Condition THREE Action Items Complete:** \_\_\_\_\_

**Date:** \_\_\_\_\_



**Condition TWO**  
**Destructive Winds are possible within 24 hours or**  
**a Small Area Storm is possible within 6 hours)**

**Date/Time Entered Condition TWO:** \_\_\_\_\_

**Action Items:**

- ☐ Evacuate all visitors from the site.
- ☐ Conduct a role call of site personnel and inform the Project Manager.
- ☐ Check the status all incoming shipments of supplies and equipment.
- ☐ Remove all unnecessary vehicles from the site.
- ☐ Secure heavy equipment in accordance with manufacturer's specification.
- ☐ Ensure that stockpiles are covered and secure.
- ☐ Secure all valuable records and equipment.
- ☐ Release personnel from the site.
- ☐ Recheck all items on checklist FOUR and THREE to ensure they are complete (i.e.: gas tanks are still filled).

**Condition TWO Action Items Complete:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Condition ONE**  
**(Destructive Winds are possible within 12 hours or**  
**a Small Area Storm is imminent within 1 hour)**

**Date/Time Entered Condition ONE:** \_\_\_\_\_

**Action Items:**

- ☐ Complete all action items for lower conditions of readiness.
- ☐ Secure job-site access and evacuate to safe refuge.

**Condition ONE Action Items Complete:** \_\_\_\_\_  
**Date:** \_\_\_\_\_

## **Resume Site Operations**

**Date/Time Resume Site Operations:** \_\_\_\_\_

**Action Items:**

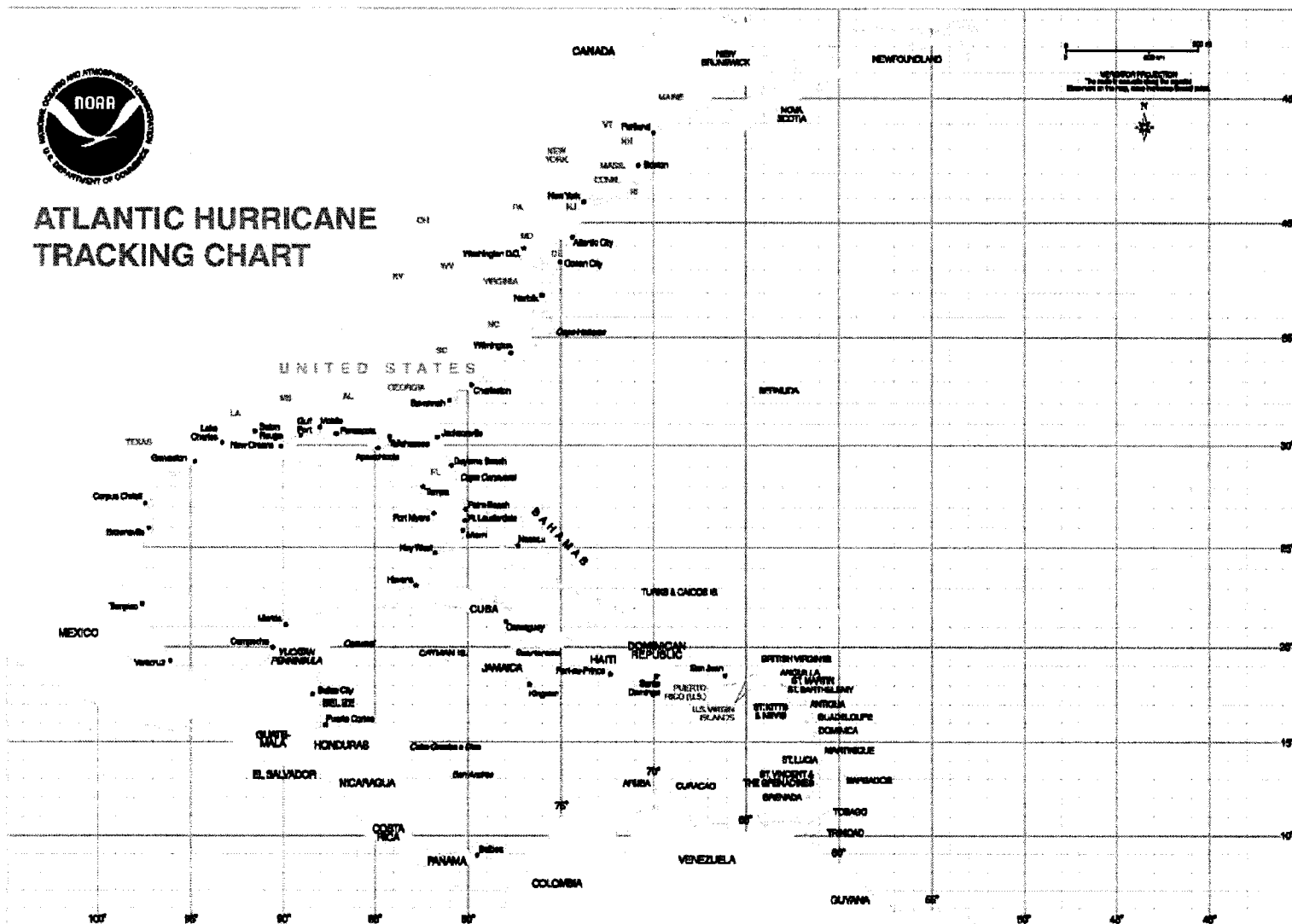
- ☐ Conduct a damage survey.
- ☐ Notify all site personnel when to return to work.
- ☐ Develop a prioritized recovery plan.
- ☐ Inspect electrical equipment before re-energizing to detect and repair damage.
- ☐ Provide bottled water for drinking until normal drinking water is deemed safe to drink.
- ☐ Remove storm debris from site.
- ☐ Notify Program Manager of the resumption of site activities.

**Resume Site Operations Action Items Complete:** \_\_\_\_\_ **Date:** \_\_\_\_\_

# ATTACHMENT D

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## *HURRICANE TRACKING MAP*



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APPENDIX G  
*OSHA 300 LOG*



## Log of Work-Related Injuries and Illnesses

Year 2010

**U.S. Department of Labor**  
Occupational Safety and Health Administration



Form approved OMB no. 1218-0176

City \_\_\_\_\_ State \_\_\_\_\_

Be sure to transfer these totals to the Summary page (Form 300A) before you post it.

Page 1 of 1

Injury					
(1)	(2)	(3)	(4)	(5)	(6)
	Skin Disorder	Respiratory Condition	Poisoning	Hearing Loss	All other illnesses

# OSHA's Form 300A (Rev. 01/2004)

## Summary of Work-Related Injuries and Illnesses

Year \_\_\_\_\_



U.S. Department of Labor  
Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

All establishments covered by Part 1904 must complete this Summary page, even if no injuries or illnesses occurred during the year. Remember to review the Log to verify that the entries are complete

Using the Log, count the individual entries you made for each category. Then write the totals below, making sure you've added the entries from every page of the log. If you had no cases write "0."

Employees former employees, and their representatives have the right to review the OSHA Form 300 in its entirety. They also have limited access to the OSHA Form 301 or its equivalent. See 29 CFR 1904.35, in OSHA's Recordkeeping rule, for further details on the access provisions for these forms.

### Number of Cases

Total number of deaths	Total number of cases with days away from work	Total number of cases with job transfer or restriction	Total number of other recordable cases
0	0	0	0
(G)	(H)	(I)	(J)

### Number of Days

Total number of days away from work	Total number of days of job transfer or restriction
0	0
(K)	(L)

### Injury and Illness Types

Total number of...  
(M)

(1) Injury	0	(4) Poisoning	0
(2) Skin Disorder	0	(5) Hearing Loss	0
(3) Respiratory Condition	0	(6) All Other Illnesses	0

Post this Summary page from February 1 to April 30 of the year following the year covered by the form

Public reporting burden for this collection of information is estimated to average 58 minutes per response, including time to review the instruction, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any aspects of this data collection, contact: US Department of Labor, OSHA Office of Statistics, Room N-3644, 200 Constitution Ave, NW, Washington, DC 20210. Do not send the completed forms to this office.

### Establishment information

Your establishment name \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Industry description (e.g., Manufacture of motor truck trailers) \_\_\_\_\_

Standard Industrial Classification (SIC), if known (e.g., SIC 3715) \_\_\_\_\_

OR North American Industrial Classification (NAICS), if known (e.g., 336212) \_\_\_\_\_

### Employment information

Annual average number of employees \_\_\_\_\_

Total hours worked by all employees last year \_\_\_\_\_

### Sign here

Knowingly falsifying this document may result in a fine.

I certify that I have examined this document and that to the best of my knowledge the entries are true, accurate, and complete.

\_\_\_\_\_  
Company executive

\_\_\_\_\_  
Title

\_\_\_\_\_  
Phone

\_\_\_\_\_  
Date

# OSHA's Form 301

## Injuries and Illnesses Incident Report

**Attention:** This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.



U.S. Department of Labor  
Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

This *Injury and Illness Incident Report* is one of the first forms you must fill out when a recordable work-related injury or illness has occurred. Together with the *Log of Work-Related Injuries and Illnesses* and the accompanying *Summary*, these forms help the employer and OSHA develop a picture of the extent and severity of work-related incidents.

Within 7 calendar days after you receive information that a recordable work-related injury or illness has occurred, you must fill out this form or an equivalent. Some state workers' compensation, insurance, or other reports may be acceptable substitutes. To be considered an equivalent form, any substitute must contain all the information asked for on this form.

According to Public Law 91-596 and 29 CFR 1904, OSHA's recordkeeping rule, you must keep this form on file for 5 years following the year to which it pertains.

If you need additional copies of this form, you may photocopy and use as many as you need.

### Information about the employee

- 1) Full Name \_\_\_\_\_
- 2) Street \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_
- 3) Date of birth \_\_\_\_\_
- 4) Date hired \_\_\_\_\_
- 5) ☐ Male  
☐ Female

### Information about the physician or other health care professional

- 6) Name of physician or other health care professional \_\_\_\_\_
- 7) If treatment was given away from the worksite, where was it given?  
Facility \_\_\_\_\_  
Street \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_
- 8) Was employee treated in an emergency room?  
☐ Yes  
☐ No
- 9) Was employee hospitalized overnight as an in-patient?  
☐ Yes  
☐ No

### Information about the case

- 10) Case number from the Log \_\_\_\_\_ (Transfer the case number from the Log after you record the case.)
- 11) Date of injury or illness \_\_\_\_\_
- 12) Time employee began work \_\_\_\_\_ AM/PM
- 13) Time of event \_\_\_\_\_ AM/PM ☐ Check if time cannot be determined
- 14) **What was the employee doing just before the incident occurred?** Describe the activity, as well as the tools, equipment or material the employee was using. Be specific. Examples: "climbing a ladder while carrying roofing materials"; "spraying chlorine from hand sprayer"; "daily computer key-entry."
- 15) **What happened?** Tell us how the injury occurred. Examples: "When ladder slipped on wet floor, worker fell 20 feet"; "Worker was sprayed with chlorine when gasket broke during replacement"; "Worker developed soreness in wrist over time."
- 16) **What was the injury or illness?** Tell us the part of the body that was affected and how it was affected; be more specific than "hurt", "pain", or "sore." Examples: "strained back"; "chemical burn, hand"; "carpal tunnel syndrome."
- 17) **What object or substance directly harmed the employee?** Examples: "concrete floor"; "chlorine"; "radial arm saw." If this question does not apply to the incident, leave it blank.
- 18) **If the employee died, when did death occur?** Date of death \_\_\_\_\_

Completed by _____
Title _____
Phone _____ Date _____

## **ATTACHMENT 3**

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### ***SAFETY PERSONNEL RESUMES AND PROOF OF TRAINING AND COMPETENCY***

## Steve M. Carriere

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### Professional Qualifications

Mr. Carriere has over 18 years of experience in the environmental remediation industry involving project management, project supervision, health and safety, and on-site implementation. Mr. Carriere has managed several cost reimbursable and fixed price contracts for federal and commercial programs. Mr. Carriere is currently assigned as a Project Manager for the U.S. Navy's Atlantic Division Naval Facilities Engineering Command (LANTDIV) Program. Mr. Carriere has recently received his Project Manager Professional (PMP) credentials by passing the Project Management Institute (PMI) PMP certification exam. He is an active member of PMI and attends the monthly meetings.

Mr. Carriere has extensive construction knowledge in landfill cap remediation, above and below ground tank remediation, site surveys, sheeting and shoring implementation, soil excavation, structure and building demolition, water treatment installations, and transportation and disposal (T&D) coordination. In addition, he has been involved in extensive unexploded ordnance (UXO) remediation projects for several Naval Bases within the LANTDIV Program. His working knowledge of the UXO industry has provided a solid base for the future of all UXO projects within the program.

Mr. Carriere has also proudly served four years in the U.S. Military. His extensive training on the hazardous conditions of nuclear, biological, and chemical atmospheres provides a good basic knowledge for the hazardous waste industry.

### Additional Training/Continuing Education

8 hr Refresher Certification, Yorktown, VA, 2008  
8 Hr Refresher Certification, Norfolk, VA, 2007  
8 Hr Refresher Certification, Virginia Beach, VA, 2006  
8 Hour Refresher Certification, Virginia Beach, VA, 2005  
10 Hour Construction Supervisor Course, Virginia Beach, VA, 2004  
Corps Of Engineers QC Management Course, Virginia Beach, VA, 2004  
Hazmat Emergency Response Training, Trenton, NJ, 1997  
Supervisory Skills Workshop Part 1 and Part 2, Trenton, NJ, 1997  
4 Hour HM 181/126 DOT Training, Trenton, NJ, 1995  
CWM Environmental Sampling Course, South Plainfield, NJ, 1991  
8 Hour Environmental Management Course, Newark, NJ, 1990  
40 Hour Site Safety Officer Course, Newark, NJ, 1990  
40 Hour OSHA 1910.120 Training, Delaware, 1989  
US Army (NBC) Training, Ft. Benning, GA, 1986

### Registrations/Certifications/Licenses

Certified Project Management Professional (PMI), 2005, 240576, Active, Nationwide, 12/2011

## Experience and Background

**05/2002 - Present**

***Project Manager, Shaw Environmental & Infrastructure, Inc., Trenton, New Jersey***

Background includes project management, project coordination, health and safety plan preparation, and on-site implementation. Served four years in the U.S. Military with extensive training with hazardous conditions of nuclear, biological, and chemical atmospheres. Mr. Supervises on-site Shaw multidisciplinary personnel and subcontractors. Directs the utilization of heavy equipment field construction activities at chemical and hazardous waste remediation sites. Responsible for preparation of and adherence to the remedial site plan documentation, including financial documentation, cost tracking, work plans, spill prevention plans, and health and safety plans. Also ensures that work is conducted in accordance with applicable quality assurance/quality control (QA/QC), U. S. Department of Transportation (DOT), and Resource Conservation and Recovery Act (RCRA) / Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) requirements. Also takes on the responsibilities of the site QC manager on select projects and ensures that all aspects of hazardous waste site remediation adhere to the QC program specifications, the U.S. Army Corps of Engineers (USACE) Three-Step Quality Process, and engineering requirements.

Project management duties included extensive above and below ground tank remediation, site surveys, sheeting and shoring implementation, soil excavation, structure and building demolition, water treatment installations, and T&D coordination. Also has participated in bid preparations, to include sitewalks, project scheduling and budgeting, and cost estimation.

***The following is a summary of key projects:***

**Project Manager, Site 28 Soil Removal Action, 126566, LANTDIV-NAVY, Indian Head, MD, \$1,202,878.00, 09/2007 - Present**

Soil removal action for Site 28 located at Indian Head, MD. Project consist of removing approximately 2400 cubic yards of metal contaminated soils for off site disposal. The site has to be backfilled and restored to promote vegetation and wetland species.

**Other Comments:**

The site contained single base propellant grains which prompted Shaw to develop an Explosive Safety Submission for NOSSA review and approval before work could be completed.

**Project Manager, Scrap Yard, 119340, LANTDIV - Navy, Indian Head, MD, \$748,565.00, 11/2006 - Present**

Develop ESS for explosive operations within the scrap yard. Coordinate an onsite blast chamber that would enable Shaw to handle items with less than 6.5 lbs of Net explosive weight. Also responsible for the mechanical screening of soil piles to verify that all soils shipped off site contain no MEC's. Project includes PCB soil excavation and disposal.

**Project Manager, Tire Shop (Pax River), 123000, LANTDIV - NAVY, Pax River, MD, \$114,677.00, 09/2006 - Present**

Project includes a soil removal action that will require excavation and disposal of 216 in place cubic yards of TPH contaminated soils. E & S features will be installed, as well as minimal clearing and grubbing activities. Site restoration will consist of installing common fill and top soil back to original grade and hydroseeding for vegetation.

Other Comments:

Project is scheduled to mobilize in early spring of 2007.

Project Manager, Interim Removal Action for East Range Landfill, 123001, LANTDIV - NAVY, Solomons, MD, \$2,509,454.00, 09/2006 - Present

Project includes removal of miscellaneous debris and anomalies that are within the east range landfill. Care will be taken throughout the excavation process to identify all MPPEH materials and possible MEC items. Approximately 13,500 tons of material is estimated to be excavated and disposed of off site. UXO technicians will be on site to identify any munitions of concern.

Other Comments:

Project scheduled for May 2007 mobilization.

Project Manager, UST/AST Upgrades, 123206, LANTDIV - NAVY, Pax River, Solomons, St. Inigoes, MD, \$274,560.00, 09/2006 - present

Remove, install and up grade UST/AST's located within the Pax River Naval Air Station area. Three surrounding facilities require tank upgrades for fuel oil, gas, and diesel tanks.

Other Comments:

Project schedule for mobilization April, 2007.

Project manager, Site 32, ST. Inigoes, 123344, LANTDIV NAVY, St. Inigoes, MD, \$523,496.00, 09/2006 - present

Excavate and dispose of subsurface debris and soil approx 7000 tons. Materials show low TPH contamination and is mainly construction debris removal. UXO technicians will be on site to monitor all excavation activities due to previous finds of explosive relative items.

Other Comments:

Mobilization scheduled for May 2007.

Project Manager, UXO 32 Scrap Yard, 831866, U.S. Navy, Indian Head, Maryland, \$921,000.00, 07/2005 - Present

Assigned to a UXO remediation project at the Indian Head Naval Base. Job includes removing all stored UXO located at the Scrap Yard location. Will oversee the Explosive Safety Submission Plan, Work Plan, and SOPs for handling MPPEH's that must be approved by Naval Ordnance Safety & Security Activity (NOSSA), and will coordinate the set up of a remote water cutting operation that will allow all MPPEH's to be opened remotely and have the contents sampled to determine if MPPEH's contain explosives. Shaw will perform demilling of all inert rounds to be conducted in accordance with U.S. Navy standards for UXO scrap.

Other Comments:

All MPPEH items will be PELAN scanned prior to be cut with the water cutting operation. The PELAN scanning device has a 99.9% effective ration of determining if the item has less than 1 lb of explosive material inside.

Project Manager, Indian Head Lab Area, 115529, U.S. Navy, Indian Head, Maryland, 04/2005 - Present

Project Manager for Navy Task Order 51. Responsible for review of 35% design of an environmental remediation report. Will provide a constructibility and implementability report two weeks after 35% design is received.

Project Manager, Olsen Road Landfill, 115273, U.S. Navy, Indian Head, Maryland, \$3,200,000.00, 01/2005 - Present

Assigned as Project Manager to the Olsen Road Landfill Cap Construction. Estimated a firm fixed price project for the Navy. Was responsible for the initial site walk and the estimate package for the landfill project located at Indian Head, Maryland.

The project consisted of installing a 1.5 acre 40 mil LLDPE liner and a 2 foot soil cover over the existing landfill to comply with a RCRA closure. The project was completed with cost a savings 8% higher profit margin than originally forecasted. The Olsen Road Landfill project required a Site Approval from NOSSA because it was located within existing explosive arcs from base facilities. The project was only allowed to conduct work on Friday, Saturday and Sunday.

**Accomplishments:**

Completed project under budget on schedule with several challenges during the project. The client was very satisfied with the project deliverables.

**Other Comments:**

Project encountered several Material Potentially Presenting an Explosive Hazard (MPPEH) items. The project was equipped with 2 UXO certified technicians on site for all intrusive and soil screening activities. Most MPPEH items were deemed as inert and safe to move, they were stored in a lockable container for demilling. Two items were required Navy EOD response. These items were taken by the EOD Dahlgren detachment team.

Project Manager, NAPR Landfill Closure, 110050, LANTDIV - NAVY, Ceiba, Puerto Rico, \$7,213,913.00, 08/2004 - Present

Conduct landfill closure on a 50 plus acre landfill located on NAPR, in Ceiba, Puerto Rico. Landfill cover includes installation of 18 inch clay cap with an additional 6 inch vegetative cover material on top of clay cap system. Installation of Monitoring wells and gas vents are also included in landfill closure.

**Other Comments:**

Project was awarded in 2004, however did not mobilize until 9/2007 due to lack of permits required through PR.

Project Manager, Bainbridge Landfill Repairs, 128201, LANTDIV-Navy, Port Deposit, MD, \$108,912.00, 08/2007 - 02/2008

Replace 33 gas vent piping with new HDPE pipe and provide insect and bird screens on each. Repair 4 vent pipes that were damaged below the 40 mil. HDPE liner, and repair liner in accordance with manufacturers recommendations. Install 30 inch HDPE pipe protectors over the newly installed vents and fill the void space with sand and a concrete cover to prevent damage to vent pipes.

**Accomplishments:**

Project completed with zero incidents or accidents.

Project Manager, Site 57 TCE Cleanup, 120359, US Navy, Indian Head, Maryland, \$800,000.00, 06/2006 - 07/2006

Project consisted of excavation of 3 areas that contained TCE, and Arsenic concentrations that exceeded the regulatory limits for industrial/residential criteria. Materials were excavated to ground water and stored on a poly lined berm holding cell where waste characterization samples were taken to coordinate



appropriate disposal. The areas were restored to there original condition, i.e., vegetative cover and asphalt cover.

Accomplishments:

Project was completed under budget and had NO accidents or incidents during the project.

Site Manager, Patuxent River, 843844, Patuxent River, Patuxent River, Maryland, \$7,241,000.00, 06/2003 - 12/2004

Was responsible for day-to-day management of all on-site construction activities for the removal of 85,000 tons of municipal waste. Responsibilities included cost tracking, project scheduling, subcontractor management, procurement of materials and equipment. The project included the design and use of a remote drilling operation that enabled the cavity of Munitions of Concern to be accessed from a safe distance while observing from a remote camera. The project recorded over 23,000 works hours with no accidents or incidents.

Accomplishments:

Performed T&D for 85,000 tons of nonhazardous material of municipal waste. Regraded site and disposed of UXO scrap after demilling. Project also developed a remote drill that was designed and built by Shaw. The remote drill operation allowed Shaw to access the cavity of the Munitions of Concern with personnel at a safe 300 feet distance away.

Awards/Client Commendations:

Project received safety award for recording over 20,000 man hour work with no incidents or accidents.

Other Comments:

During the project over 1,000 MEC items were encountered. A Site Approval had to be issued by DDESB for the siting of a Temporary magazine for storing MEC items that may have contained explosives.

Site Manager, Towngut Landfill, 809401, U.S. Navy, Indian Head, Maryland, 07/2002 - 02/2003

Project was a five-acre landfill closure soil cap. Regraded subsurface area and brought in common fill to meet subsurface grade. Off-site select fill and top soil was brought in to complete two foot cover over landfill.

Accomplishments:

Saved the Navy money by decontaminating scrap metal and recycling, and brought in concrete crusher to reduce size of large concrete to allow placing of small concrete in landfill waste grade. Off-site disposal was not needed for the concrete.

Awards/Client Commendations:

Project received 98% award fee and had no accidents or incidents.

Site Manager, Bethesda Medical Center, U.S. Navy, Bethesda, Maryland, 04/2002 - 06/2002

Removed all drain pipe in three individual buildings that were contaminated with mercury. Project personnel worked six days a week 24 hours a day to meet the Navy's schedule. Two crews recorded over 10,000 work manhours with no injury or accident.

Accomplishments:

Project was completed under budget and on schedule.

**10/1989 - 05/2002**

***Site Manager, IT Corporation (The Shaw Group Inc. acquired substantially all of the operating assets of The IT Group, Inc. on May 23, 2002), Trenton, New Jersey***

Please see job description above.

***The following is a summary of key projects:***

Site Manager, Anacostia Navy Yard Anthrax, U.S. Navy, Washington, D.C., 10/2001 - 12/2001

Set up one of the first mail screening facilities for anthrax. Supervised the containment area erection and internal facility for allowing the bio-hazard screening process.

**Other Comments:**

Facility was installed and running within four weeks after notice to proceed.

Site Manager, Fishing Point Landfill, U.S. Navy, Patuxent River, Maryland, 03/2000 - 10/2001

Performed closure of a 38-acre municipal landfill. Soil cap landfill included three phases of an 18-month project. Established a 12-acre borrow pit on site to help the Navy with cost of importing material. Conducted beach line restoration, gas vent installation, and parking lot development.

**Awards/Client Commendations:**

Project received company award for working over 40,000 hours with no accidents or incidents. Received 95% award fee from Navy.

Site Manager, Patuxent River, , U.S. Navy, Patuxent River, Maryland, \$1,915,000.00, 10/1999 - 03/2000

Coordinated joint efforts with base environmental and base construction teams at Patuxent River by placing soil cap over geotextile fabrics above a low volatile contaminated area of approximately eight acres. When cap was complete, concrete parking lot was installed for jet fuel tankers. The parking lot was designed with a drain system that leads to an oil water separator to prevent ground contamination for any fuel truck.

**Awards/Client Commendations:**

Project received a commendation from the base Occupational Safety and Health Administration (OSHA) safety officer.

Site Manager, Dahlgren, 777105, U.S. Navy, Dahlgren, Virginia, \$2,391,000.00, 02/1999 - 10/1999

Project was a RCRA closure of a six-acre landfill using multi-layer composite cap on land and geotextile cap over three-acre marsh area. Gas vents were installed, as well as haul road for cap inspections.

**Awards/Client Commendations:**

Received 97% award fee from Navy. Project was completed under budget.

Site Manager, Port Deposit, , U.S. Navy, Port Deposit, Maryland, \$875,000.00, 03/1998 - 12/1998

Conducted various repairs to an existing landfill. Repairs included stripping of existing cover material placed over multi-layer composites without damaging composites. Installed drainage berm on landfill to redirect sheet flow to a controlled area drop box, to eliminate erosion on cap. Installed two such berms around cap and two drop boxes. New drainage features (sediments traps) were also installed to handle the concentrated flow of water.

Site Manager, Dahlgren SMU, U.S. Navy, Dahlgren, Virginia, 06/1997 - 10/1997

Excavated and disposed of soils at several sites around buildings. Used sheet piling and shoring for several buildings to prevent damage. Also removed and reinstalled metal overhead canopy for concrete

decontamination pad.

Superintendent, Russell Road Landfill, , U.S. Navy, Quantico, Virginia, \$14,104,000.00, 06/1996 - 04/1997

Supervised the first RCRA landfill closure in the Commonwealth of Virginia. The project consisted of construction of a multi-layer composite over the 28-acre landfill, installation of sediment control structures to protect adjacent waterways and wetlands from 60 acres of open excavation, and the installation of a 6,000 linear foot (lf) leachate collection system. The project developed an on-site borrow source that saved the Navy significant money by eliminating the amount of off-site fill that was needed for the cap installation.

Accomplishments:

This was the first RCRA closure in the Commonwealth of Virginia. Saved the Navy money by developing a 15 acre on-site borrow pit to greatly reduce the amount of cost needed for purchased off site backfill material.

Project Superintendent, Groton Soil Vapor Extraction (SVE) Systems, U.S. Navy, Groton, Connecticut, 02/1996 - 06/1996

Installed and operated two soil vacuum groundwater systems. The SVE systems included 81 sparge wells, 35 vacuum extraction wells, and 16 horizontal vacuum extraction laterals. Each system had a small water treatment system that was incorporated into the design to provide final treatment for the water collected in the SVE systems prior to release to the sanitary sewer.

Awards/Client Commendations:

Project received 98% award fee from Navy. Project completed on-budget and on-schedule.

Project Superintendent, Brunswick SVE System, , U.S. Navy, Brunswick, Maryland, \$743,000.00, 11/1995 - 02/1996

Installed air sparging/SVE system and treatment facility for the removal of hydrocarbons (jet fuel) from the vadose zone and groundwater. Small water treatment system also installed to treat water from the SVE system prior to release of water to sanitary sewer.

Awards/Client Commendations:

Received 100% award fee for project and had no accidents or incidents.

Project Superintendent, Groton OT-5, U.S. Navy, Groton, Connecticut, 07/1995 - 11/1995

Completed a RCRA/Toxic Substances Control Act (TSCA) below ground tank closure of a 750,000-gallon underground storage tank (UST). The waste oil UST had to be dewatered prior to remediation. Recommended and received approval for the installation of an on-site water treatment system to handle the oily waste.

Accomplishments:

Saved the Navy \$85,000 of T&D cost by installing the water treatment system, instead of off-site disposal.

Awards/Client Commendations:

Received a 95% award fee from the Navy.

Project Manager, Wyeth Lagoon Closure, , Wyeth Averst Laboratory, Chazy, New York, \$122,000.00, 06/1994 - 08/1994

Conducted a lagoon closure including solidification of sludge and performed T&D.

Accomplishments:

Project completed on budget and on schedule. No accidents or incidents happened on project.

Project Manager, Al Tech Steel, Al Tech, Waterliet, New York, 03/1994 - 06/1994

Helped design and set up a screening plant with crusher to pull out 300 series stainless steel metal from other metals, rock, and debris.

Accomplishments:

Completed project under budget and on schedule.

Project Manager, Remington Arms, DuPont Remington Arms, Ilion, New York, 01/1994 - 03/1994

Cleaned and demolished a 5,000-gallon caustic dipping tank inside of active building.

Accomplishments:

Completed work without any interruptions with ongoing plant activities.

Project Manager, Harmony Grove Landfill, , Waste Management, Dover Township, PA, \$383,000.00, 08/1993 - 11/1993

Installed water collection and treatment system around existing landfill. Trenched 2,400 lf, installed dope pipe and electrical lines, and conducted site restoration. Supervised the water treatment building erection and installation of building accessories.

Accomplishments:

Project was completed under budget and on schedule.

Awards/Client Commendations:

Received letter of commendation from the client.

Project Manager, Ortho ECRA, , Ortho Company, Robbinsville, New Jersey, \$1,100,000.00, 04/1993 - 08/1993

Performed Environmental Cleanup Response-Liability Act (ECRA)-guided cleanup for pesticide remediation. Performed T&D of solids for landfill and incineration.

Project Manager, Texas Eastern Little Ferry, , Texas Eastern, Little Ferry, Texas, \$950,000.00, 07/1992 - 12/1992

Removed 5,200 tons of polychlorinated biphenyl (PCB)-contaminated waste around buildings and high voltage lines. Coordinated T&D.

Accomplishments:

Job was completed with no accidents or incidents and finished project on schedule and on budget.

Other Comments:

Shoring of buildings was required for excavation.

Health and Safety Officer, Texas Eastern Boston Harbor Tunnel, Texas Eastern, Various Locations,

**04/1990 - 05/1992**

Filled roles as Site Safety Officer (SSO) and project coordinator. Project coordinator was responsible for field crew day-to-day supervision.

***05/1989 - 10/1989***

***Recovery Technician, Guardian Environmental, Bear, Delaware***

Experience included extensive above and below ground tank remediation, drum overpacking and handling, sampling and waste characterization of unknown waste streams, confined space entry in hazardous environments, and decontamination of hazardous waste material.

**Professional Affiliations**

PMI ( Project Management Institute), 2005

## Brian R. Harris

### Professional Qualifications

Mr. Harris has over 12 years of experience in many areas of the environmental remediation field. He has managed projects valued at more than \$4 million. His technical experience include project management, site investigations and delineation, site monitoring and remedial actions.

Mr Harris has managed construction projects ranging from landfill closures to maintenance of storm water management systems. He is experienced in contaminated soil removal and disposal, wetland mitigation and monitoring, soil placement and compaction as well as site surveying layout and control networks. He is also knowledgeable in soil properties and classifications, stone aggregates, trenching, excavation, groundwater monitoring, and sampling.

As a site manager, he is responsible for on-site oversight of personnel and equipment, procurement of equipment and materials, project health and safety compliance, budgeting, cost tracking, scheduling, and client relations.

### Additional Training/Continuing Education

8 Hour Refresher, Shaw E&I, 2008  
USACE Quality Control Management Course, Norfolk, VA, 2007  
Site Safety Officer Training, Shaw E&I, 2005  
First Aid / CPR Training, Shaw E&I, 2004  
Competent Person Training, Shaw E&I, 2004  
Confined Space Supervisor Training, Shaw E&I, 2002  
Troxler Certification, OHM Remediation, 1996  
Asbestos Awareness Training, OHM Remediation, 1995  
40 Hour OSHA Hazardous Waste Training (29CFR1910.120), OHM Remediation, 1994

### Registrations/Certifications/Licenses

USACE Construction Quality Control Manager, 2009, XXXX, Active, Nationwide, 07/2014

### Experience and Background

#### *04/2007 - Present*

*Site Manager, Shaw Environmental & Infrastructure, Inc., Norfolk, Virginia*

Site Manager responsible for the oversight of multiple project running concurrently. Also responsible for scheduling of personnel, equipment, materials and subcontractors needed to complete the projects according to the remedial design plan and on budget. Assist the project manager with monthly cost tracking and updating the project schedule. Mr. Harris also communicates directly with the client relaying project progress and notifying them of any delay or changes.

#### *The following is a summary of key projects:*

Site Manager, Basewide Clean-up - Site 4, 5 and 34, 136090, NAVFAC Washington, NAS Patuxent

River, MD, \$956,000.00, 06/2009 - Present

My responsibilities for this project was to provide oversight of removing mainly surface debris from various site at Pax River. A handheld GPS unit was used to location the items on the inventory list that were previously identified and also document additional items found during the removal. All debris collected during this removal are segregated in a staging area in order to recycled as much of the material as possible to reduce the volume that is shipped to a disposal facility. A concrete pulverizer is being used to break up the concrete so it can be reused on base for temporary access roads.

Site Manager, Webster Field - Site #32, 123344, Navy, St. Inigoes, \$523,496.00, 04/2007 - Present

Assigned to this project as the site manager responsible for the excavation and disposal of 5500 tons of waste soil and debris thus far. The excavation area has increase significantly and ordnance was also encountered delaying the completion of this project.

Site Manager, Holton Pond - Site #17, 127435, NAVFAC Washington, NAS Patuxent River, MD, \$1,440,000.00, 12/2008 - 10/2009

This project included the dewatering of a 24 millions gallon pond using three 6" dri prime pumps in order to excavated pesticide contaminated soil from three locations in and around the pond. Numerous soil sediment samples were collected to further delineate limits and depth of excavation areas. A long reach excavator working off swamp mats and low ground pressure track dump trucks were utilized to complete the excavation due to the soft ground surface of the pond. A temporary access road was installed into the pond and was used in conjunction with Aquadams to divert water around the excavation area. A total of 900 linear feet of 30" tall Aquadams were installed to divert the clean water around the excavation. All sediments were hauled to a material staging pad where they were solidified using kiln dust and lime before being shipped off site to the disposal facility. During the project MDE Dam Safety inspected the dam and outfall structure and deemed it unsafe to refill them pond because of the deteriorating of the over flow pipe causing erosion of the dam soils. Subsequently a rip rap lined channel was designed and installed in place of the dam.

Site Manager, Joint Strike Fighter Chilled Fuel Facility, 130729, Naval Facilities Engineering Command, NAS Patuxent River, MD, \$2,000,000.00, 08/2008 - 05/2009

I was assigned to this project on a part time basis to help provide oversight of the following. Installation of two 15,000 gallon above ground storage tanks (ASTs), one skid-mounted chiller unit, and one skid-mounted fuel recirculation unit (all Government-furnished) inside an existing concrete curbed pad. The project also included the fabrication and installation of fuel piping, a fuel pump, a motor and starter, valves, a filter/separator unit, a pantograph fueling station, and associated appurtenances necessary to provide chilled fuel for the testing of the Joint Strike Fighter (JSF) aircraft. New concrete equipment pads, storm sewer basins and piping for the dike areas, and new electrical power source (new transformer) and electrical service were also needed as part of this work. After completion of the new equipment, piping, electrical systems, Shaw tested and commission the systems in order to make them operational.

Site Manager, Tank 1470, 131353, Naval Facilities Engineering Command - SW Division POL, NAS Patuxent River, MD, \$500,000.00, 03/2008 - 03/2009

My responsibilities for the Tank 1470 project included oversight of the cleaning, coating removal for visual inspection and vacuum box testing of the tank floor and floor-to-shell welds, installation of patch plates or puddle welds to repair existing deficiencies, removal of the roof column base plate welds and installation of retaining tabs, surface preparation and re-coating of the tank floor, interior appurtenances, and 30 inches up the shell, surface preparation and re-coating of the interior tank roof, installation of overfill protection, gauge hatch, and stilling well, minor external coating repairs, and strapping/calibration on Tank 1470 at NAS Patuxent River, MD.

Additional deficiencies noted during the visual inspection and vacuum box testing lead to additional testing such as specialized helium testing and ACFM testing. A stilling well was also installed as part of the repairs and upgrades. I was also tasked with providing on site Quality Control and Health and Safety for this project.

Site Manager, Solomons Cove 1, 123001, Navy, Solomons, MD, \$2,500,000.00, 07/2007 - 04/2008  
Project included the excavation and disposal of approximately 24,500 tons of waste soil and debris from the Solomons Naval Recreation Center. During the excavation ordnance items and ground water were encountered which both required special attention. Once sample results confirmed areas where clean we began backfilling with clean sand. A geophysical survey was completed along the shoreline and some metal anomalies found in the water. There was a concern these items could be ordnance so a Remote Operation Vehicle was brought in to investigate these items. As the final step of site restoration high organic topsoil was placed in the Cove and it was revegetated with wetland plants.

**Accomplishments:**

Nearly doubled the amount of T&D and backfill sand originally estimate with no significant budget increase. This was done by working with our subcontractors on pricing and also removing the topsoil off the site before excavating the waste. The original topsoil was stockpiled then placed over the backfill sand thus eliminating the need to purchase a large amount of topsoil.

Site Manager, UST/AST Upgrades, 123206, Navy, Pax River, Solomons and St. Inigoes, MD, \$274,560.00, 04/2007 - 12/2007

Assigned to complete this project after the original Superintendent resigned from the company. Completed the installation of three AST's at the Solomons Naval Recreation Center and two AST's at the Webster Field Annex. Responsible for arranging the placement of the tanks then scheduled an electrician to complete the wiring of the tank to meet all federal requirements.

Site Manager, Tire Shop, 123000, Navy, Pax River, \$114,677.00, 04/2007 - 12/2007

This project consisted of the excavation and disposal of 360 tons of nonhazardous soil from a drainage channel. Before excavating the site was cleared of all trees and brush then a clear water diversion berm was installed on the up gradient side of the channel as part of the erosion control features. Once the excavation was complete and the confirmation sample results were received the site was backfilled with topsoil and restored to its original elevations.

***10/2004 - 03/2007***

***Site Superintendent, Shaw Environmental & Infrastructure, Inc., Monroeville, Pennsylvania***

Site Superintendent responsible for scheduling project personnel and equipment and oversight of subcontractor activities. Also reporting the progress of the different sites to the project manager as well as the client. Other responsibilities include implementing the site health and safety plan, ensuring all work is completed according to the design and on schedule, and tracking project costs.

***The following is a summary of key projects:***

Superintendent, Scrap Yard - UXO 32, 831866, U.S. Navy, Indian Head, Maryland, \$921,000.00, 08/2006 - Present

Responsible for the oversight on a project that demilitarized over 250 ordnance items with a remote high pressure water jet cutter. Before each item was cut a PELAN scan was used to determine if the item contained less than 1 lb of net explosive weight. After each item was cut to expose all cavities Exspray was used to verify there was no explosive material present. Once this process was complete the items



were moved to a final demilitarization area where the contents were removed from the item and they were prepared to be shipped off site to a smelter.

My responsibilities on this project were to insure coordinate all subcontractor work, track the day to day cost and keep the project running on schedule.

Superintendent, WP-02, 843034, United States Army Corp of Engineers, Langley Air Force Base, Hampton, Virginia, 06/2004 - Present

Mr. Harris has been responsible for oversight of a subcontractor using direct push technology in order to collect soil samples. He excavated test pits to collect soil samples for the purpose of trying to determine the limits of the contaminated soil. He was also responsible for overseeing underground utility clearance on the site using ground penetrating radar.

Other Comments:

This project is currently being evaluated by the clean contractor to determine if any further action is required.

Superintendent, Langley LF-01, 120377, AFCEE and USACE, Langley Air Force Base, Hampton, Virginia, \$705,000.00, 04/2006 - 08/2006

Assigned to the project as the Superintendent to oversee the installation of a 4.5 acre soil cover landfill at the end of the flight line at Langley Air Force Base. Other site activities included removal of 1000 feet of stone access road that was recycled to build a lay down area of the base Pavement and Grounds facility and restoration of wetland around the soil cover area.

Accomplishments:

This project was completed ahead of schedule despite losing almost half of the month of June due to weather delays.

Superintendent, Olsen Road Landfill, 115273, U.S. Navy, Indian Head, Maryland, \$3,200,000.00, 08/2005 - 05/2006

This project consisted of installing a 1.5 acre 40 mil LLDPE liner system with geocomposite and a 2 foot soil cover over an existing landfill. This work was done to comply with a RCRA closure. Due to working inside of an explosive arcs of base facilities this project required a Site Approval from NOSSA and work could only be conducted on Friday, Saturday and Sunday.

Accomplishments:

The project was completed on schedule and under budget despite several difficult challenges throughout the project.

Superintendent, Solomon's Annex, 812608, U.S. Navy, Solomon's Island, Maryland, 02/2006 - 04/2006

This project consisted of clearing the underbrush from a 22 acre wooded area so a geophysical survey could be performed. During the clearing phase all surface scrap metal and debris was removed and disposed of in roll off boxes. Several UXO items were discovered during clearing phase as anticipated. These items were demilitarized and disposed of at a smelting plant. The geophysical survey was done to determine the limits of the buried waste. Additional partial buried UXO items still remain on site and will be handled as part of the next phase of work. The current plan is a removal of all buried waste to obtain a clean closure.

Superintendent, Bainbridge, 812038, Navy, Perryville, MD, 07/2005 - 08/2005

Was responsible for the oversight of the subcontractor installing ten gas monitoring wells around the perimeter of the existing landfill, and abandonment of seven monitoring wells. This involved obtaining

underground utility clearances and facility approval. He also installed 25 warning signs around the inside of the landfill access road.

Superintendent, RCRA Closure Building 383, 837238, Navy, Portsmouth, VA, 04/2005 - 06/2005

Mr. Harris was responsible for a RCRA closure of a warehouse storage facility. The scope of work involved the demolition of a concrete slab, excavation and disposal of contaminated soil to a disposal facility off site. The excavated area was lined with a nonwoven geotextile then backfilled with clean soil.

Superintendent, RDU F18 Crash Site, 103457, Navy, Raleigh Durham Airport, 01/2005 - 02/2005

Mr. Harris was responsible for the supervision of the excavation of approximately 600 tons of contaminated soil from a rip rap lined drainage channel. A temporary access road had to be installed to gain access to the channel. The clean rip rap from the surface of the channel was removed and staged for later reuse after the contaminated soil was removed. The depth of the channel required two excavators. One excavator was located in the channel to excavate the soil and place it on the side slope of the channel where the other excavator then could reach it from the access road and load it into trucks. Once the excavation was complete the rip rap that had been staged was placed in the bottom of the channel and additional rip rap was brought in for final dress up of the channel. The channel was located at the end of a 60" concrete storm drain pipe that had to be blocked off during excavation activities and the flow was redirected around the work area.

***01/2000 - 09/2004***

***Site Supervisor, Shaw Environmental & Infrastructure, Inc., Monroeville, Pennsylvania***

Site supervisor in charge of making sure all field activities are completed on schedule and according to the design. Also worked closely with the project superintendent on tracking project cost and budget. I was also responsible for training and oversight of the site surveyor doing stakeout and as-builts, as well as reviewing all as-built to make sure they are according to design and helping maintain a set of redline as-built drawings.

***The following is a summary of key projects:***

Site Supervisor, LF-10, 843034, United States Army Corp of Engineers, Langley Air Force Base, \$1,200,000.00, 10/2003 - 07/2004

This project consisted of a 12 acre soil cover landfill cap on a golf course and removal of contaminated soil from an adjacent stream. A total of 340 tons of contaminated soil was removed from a tidal drainage channel and shipped off base to an approved landfill. As part of the soil cover a major redesign was performed to the golf course that improved surface drainage. An existing drain pipe was extended sixty feet and the sprinkler system raised as part of the improvements.

Site Supervisor, FT-41, , United States Army Corp of Engineers, Langley Air Force Base, \$40,000.00, 04/2003 - 06/2004

Excavation of contaminated soil from a drainage channel adjacent the fire training area. Approximately ninety tons of contaminated sediment was excavated and placed in roll off boxes, sampled then shipped to a disposal facility off site. After the sediments were removed from the channel sediment logs and stone check dams were installed to prevent erosion.

Site Supervisor, OT-56, 840907, United States Army Corp of Engineers, Langley Air Force Base, \$635,000.00, 09/2002 - 05/2004

This project consisted of cleaning out several hundred storm drain manhole and inlet boxes as well as seven open drainage channels. Contaminated sediments were removed from the manholes and inlets using a vacuum truck. They were then emptied into roll off boxes, sampled and then shipped to a disposal

facility off site. Contaminated soil was also removed from the open drainage channels and disposed off. In some cases, a long reach excavator was used to excavate the sediments from the channels that ranged in size from a few feet to more than thirty feet wide and up to 1,700 feet long. The wetlands within the open channels were restored using vegetation.

Site Supervisor, LF-15, , United States Army Corp of Engineers, Langley Air Force Base, \$1,400,000.00, 04/2003 - 04/2004

Mr. Harris was responsible for supervising the excavation and disposal of nearly 400 drums and contaminated soil which were shipped to a hazardous waste facility. Some of the drums which still contained liquid product were overpacked before being shipped to the disposal facility. An additional acre of debris and nonhazardous soil was excavated to ground water and disposed of at a disposal facility off site. The entire excavation area was backfilled with clean soil and restored.

Site Supervisor, LF-05, 826745, United States Army Corp of Engineers, Langley Air Force Base, \$560,000.00, 09/2002 - 06/2003

Mr. Harris was responsible for overseeing the repairs to 300 feet of roadway which had been built over a landfill. Over time the roadway had settled over the trash trenches leaving it very uneven and rough. Before the repair work could begin traffic was rerouted so the road and the underlying six feet of trash and soil could be excavated and disposed of offsite. A multilayered system consisting of geogrid, nonwoven geotextile and stone subbase material was installed to stabilize the area before it was repaved. Once the roadway was reopened the additional three acres of landfill that existed on both sides of the road was covered with two feet of clean soil then hydroseeded.

Site Supervisor, LF-12, , United States Army Corp of Engineers, Langley Air Force Base, \$839,000.00, 04/2002 - 04/2003

There were two phases to this project, the first phase consisted of a 4.5 acre soil cover over the existing landfill. The site was heavily wooded and required many trees to be cut down and chipped up prior to the soil cover being placed. Initial limits had the landfill at 4 acres but once the area was cleared test pits confirmed that the soil cover needed to be extended an additional half acre. Once the soil cover was placed and vegetation was established the second phase of the project began. This phase of work included excavating contaminated sediments from a channel adjacent to the landfill. The channel was located in a tidal wetland area and required the installation of a temporary access road. Once the access road was installed an excavator was used to remove the sediments from the channel which were loaded into trucks and disposed of at a disposal facility off site. After the sediments and access road were removed the entire area was restored.

Site Supervisor, Lf-07, , United States Army Corp of Engineers, Langley Air Force Base, \$1,079,000.00, 07/2002 - 01/2003

Mr. Harris was responsible for supervision of a four acre soil cover landfill cap and excavation of just over an acre of landfill material in order to create a tidal wetlands. Landfill material was excavated from an area that bordered a tidal drainage channel and shipped to an offsite disposal facility. Once the landfill material was removed clean soil was brought in and graded to create a wetland area that would be submerged with water during high tide.

Site Supervisor, LF-18, , United States Army Corp of Engineers, Langley Air Force Base, \$315,000.00, 02/2002 - 07/2002

Soil cover system was installed over an existing one acre landfill. Before the 18 inch of common fill and 6 inches of topsoil was placed surface debris consisting of metal and concrete was removed and shipped off site. Once the soil cover was placed the cap was hydroseeded by a subcontractor.

## Michael J. Hart

### Professional Qualifications

Mr. Hart was brought on as a Scientist in the Norfolk, Virginia office in June 2006 to assist in all phases of various environmental construction/engineering projects. He has served as on-site technical support, has 4+ years of experience as a Quality Control (QC) representative, and has written and edited various technical reports and documents including project Work Plans, QC Plans, Storm Water Pollution Prevention Plans, Construction Completion Reports, Concurrence Letters, Explosives Safety Submissions, etc...

Mr. Hart has provided technical support for a number of field related tasks, a majority of which have been in support of U.S. Navy NAVFAC Atlantic Remedial Action Contract (RAC) projects. From 2007 to 2010 Mr. Hart also acted as the lead technician for project work being performed under a separate contract at Armed Forces Experimental Training Activity (AFETA) Camp Peary, located in Williamsburg, Virginia.

### Education

Bachelor of Science, Major: Environmental Studies / Minor: Biology, The Richard Stockton College of New Jersey, Pomona, New Jersey, 2006

### Additional Training/Continuing Education

Competent Person: Drilling Oversight, Shaw Environmental, Inc., 2010  
Confined Space - Entry Supervisor, Shaw Environmental, Inc., 2010  
8-Hour HAZWOPER Supervisor Training, Shaw Environmental, Inc., 2010  
Excavation Competent Person Training, Shaw Environmental, Inc., 2010  
OSHA 30 Hour Construction Safety , Shaw Environmental, Inc., 2010  
Munitions Site Response Management, Naval Civil Engineering Corps Officers School (CECOS), Norfolk, VA, 2010  
Vapor Intrusion Pathway: A Practical Guideline, Interstate Technology and Regulatory Council (ITRC), Norfolk, VA, 2010  
Ground Shipment of Hazardous Materials, Shaw Environmental, Inc., 2010  
Air Shipment of Dangerous Goods (IATA), Shaw Environmental, Inc., 2010  
Asbestos Awareness, Reactives Management Corporation, Chesapeake, VA, 2010  
8-Hour HAZWOPER Refresher, Shaw Environmental, Inc., 2010  
First Aid/CPR (Exp. 6/2011), Norfolk, VA, 2009  
U.S. Army Corps of Engineers Construction Quality Management for Contractors, ABC Inc., Norfolk, VA, 2007  
40-Hour HAZWOPER, Reactives Management Corporation, Chesapeake, VA, 2006  
24-Hour HAZWOPER Field Experience, Shaw Environmental, Inc., 2006

### Experience and Background

#### *06/2006 - Present*

*Scientist, Shaw Environmental & Infrastructure, Inc., Federal Services, Norfolk, Virginia*

Performed technical services for federal projects. Has obtained over four years of experience acting as a

QC representative on various projects.

*The following is a summary of key projects:*

Site QC Manager, Remedial/Removal Action for UXO 32 Scrap Yard, 119340, U.S. Navy, Indian Head, MD, 05/2010 - Present

Project entailed the removal of approximately 1,350 cubic yards of soil contaminated with polychlorinated biphenyls (PCBs), and metals commingled with munitions and explosives of concern (MEC) and material potentially presenting and explosive hazard (MPPEH) from a concrete pad identified as the "Scrap Yard". Work was completed under a Naval Ordnance Safety and Security Activity (NOSSA) & Department of Defense Explosives Safety Board (DDESB) approved explosives safety submission (ESS). In areas where the pad was found to be missing or extensively damaged an additional foot of material was removed. All of the soil from inside the Scrap Yard was screened down to 3/4 inches in size to separate cartridge actuated devices (CADs) and propellant actuated devices (PADs), and any additional MEC/MPPEH, mixed in with the soil. A T-10 contained detonation chamber (CDC) operated by CH2M Hill was used to safely and efficiently dispose of MEC that could not be certified/verified as 5X. Outside of the Scrap Yard an additional 880 cubic yards of metals contaminated soil was removed, along with approximately 3,000 linear feet of railroad track. The top six inches of soil from outside of the Scrap Yard was screened as a preventive measure in case MEC/MPPEH slipped through the fence surrounding the Scrap Yard. Mr. Hart acted as Site QC Manager (supported by UXO QC) for the duration of the project and also provided technical support on an as needed basis.

QC Representative / Technical Support, Site 53/53A Housekeeping Activity, 135922, AFETA Camp Peary, Williamsburg, VA, 01/2008 - Present

The housekeeping activity at Sites 53 and 53A consisted of the removal of surface debris and coal impacted soil. At completion, approximately 17,000 tons of soil impacted with coal, PCBs, and metals had been removed from the site.

Mr. Hart's role in the project included assisting with site QC, initial test trenching oversight, Work Plan preparation, sampling support, and Global Positioning System (GPS) support, and Construction Completion Report preparation.

Technical Support, Site 25 Removal Action (ESS), 126647, U.S. Navy, Williamsburg, VA, 08/2008 - 04/2010

Mr. Hart prepared the site ESS to obtain clearance from NOSSA and the DDESB to complete a site removal action and screen soil for disposal that possibly contained MEC or MPPEH. The project was shut down in mid-2008 pending successful completion of an ESS after a 60 mm mortar round containing energetic material was unexpectedly uncovered during the removal action. The Site 25 ESS received DDESB approval in April 2010.

QC Representative / Sample Technician, Vint Hill Farms Station Ground Water Monitoring, 120924, Vint Hill Farms Station, Warrenton, VA, 02/2007 - 11/2009

February 2007: Mr. Hart assisted with the sampling and shipment of groundwater samples to be analyzed for VOCs at Vint Hill Farms Station (VHFS) AREE-34. A low-flow sampling techniques was used utilizing a Grundfos pump/control box setup with a YSI flow-through cell. Managed to work through below-freezing temperatures and aided in devising ways to prevent the sampling equipment from freezing while in the field.

November 2007: Mr. Hart served as lead sample technician for 2-day sample event performed at VHFS AREE-1. Utilized low-flow sampling technique to complete the sampling event of four landfill closure

monitoring wells.

November 2008: Mr. Hart served as lead sample technician for 4-day sample event performed at VHFS AREE-1 and AREE-34. During this sampling event a special procedure was utilized to sample a well at AREE-34 that was installed in an area that was previously treated with vegetable oil. Initially, one complete volume of the well was bailed prior to placing a sealed 15-foot PVC conduit pipe inside the 2-inch well casing. The following day, after the well recharged, LDPE tubing was run down the PVC conduit and used to break the seal allowing for access to groundwater below the vegetable oil layer. A peristaltic pump was used to collect the groundwater samples.

February & May 2009: Mr. Hart served as a sample technician for 2-day low-flow sample event performed at VHFS AREE-34.

November 2009: Mr. Hart served as the lead sample technician for a 4-day low-flow sample event performed at VHFS AREE-34 and AREE-1. During this sampling event Mr. Hart was assisted by a new hire experiencing field work and low-flow sampling for the first time. The sampling event was successfully completed as scheduled.

Technical Support, Site UXO 32 - Scrap Yard (ESS), 119340, U.S. Navy, Indian Head, MD, 08/2008 - 05/2009

Mr. Hart assisted in the preparation of the site ESS to obtain clearance from NOSSA and the DDESB to perform a removal action and screen soil for disposal that possibly contained MEC and/or MPPEH. This ESS received DDESB approval on May 14, 2009.

Technical Support, Vieques Removal Actions Solid Waste Management Unit (SWMU) 6, 7, Area of Concern (AOC) J & R, 116701, U.S. Navy, Vieques, PR, \$887,111.00, 03/2009 - 04/2009

This project consisted of the excavation and disposal of approximately 11,500 tons of debris and contaminated soil at four sites (SWMU-6, SWMU-7, AOC-J and AOC-R) on the island of Vieques, Puerto Rico. Mr. Hart contributed to this project by providing soil sampling support and general on-site technical support. Technical support activities included using a Trimble GeoXH GPS receiver to map the sites and debris removal areas. GPS data collected was transferred to the software program Visual Sample Plan (VSP) which was used to create sampling maps which were submitted to the Navy and Regulators for review and approval.

QC Representative / Technical Support, Site 41D and Site 49F, 131506, Armed Forces Experimental Training Activity, Williamsburg, VA, \$613,954.00, 04/2008 - 02/2009

Site 49F consisted of an abandoned swimming pool that was used for debris disposal. Sample analytical results showed that the soil and debris within the pool contained relatively high concentrations of PCBs. Shaw was responsible for mobilizing to the site to locate and remove the discharge line. The route of the discharge line was marked using a GPS. The drain from the pool was plugged. A clay cap was installed atop the pool to prevent further migration of contaminants outside of the pool. When the Navy CLEAN contractor was prepared to collect soil samples Shaw mobilized to the site, removed the clay and disposed of the contents of the pool and demolished the pool. Mr. Hart provided technical support for this project by providing construction oversight, GPS support, and Completion Report production.

Site 41D consisted of an abandoned wastewater treatment plant. Shaw was responsible for demolishing a chlorinator building and disposing of water and sediment in an adjacent concrete tank. An Imhoff tank and filter beds were also demolished. Mr. Hart provided technical support for this project by providing construction oversight, sample support, and Completion Report production.

Technical Support, Site 17 Soils Screening Operation at Site 11 (ESS), 126566, U.S. Navy, Indian Head, MD, 08/2008 - 12/2008

Mr. Hart assisted in the preparation of the site ESS to obtain clearance from NOSSA and the DDESB to screen soil for disposal that possibly contained MEC or MPPEH. The soils from Site 17 were originally screened for MEC, however, MEC was later found near the screened soil stockpile which had been placed at Site 11. The ESS addressed the re-screening of the stockpiled material at Site 11. This ESS received DDESB approval on December 30, 2008.

QC Representative / Technical Support, Site 30 Removal Action, 126647, U.S. Navy, Williamsburg, VA, 07/2007 - 12/2008

The overall objective of this removal action was to mitigate direct contact by human and ecological receptors with contaminated soil through removal and disposal of contaminated soil.

Unexploded ordnance construction support was required for nearly the entire life of the project. Approximately 39,800 cubic yards of soil and debris were excavated from the site. The soils were contaminated with arsenic, lead, antimony, and thallium. Following the removal of the debris and contaminated soil, the site was regraded and restored.

Final Totals:

51,453 tons of contaminated material was excavated and disposed of from the uplands portion of Site 30. 69 tons of scrap metal was sent off to a recycling facility.

256 tons of asbestos containing transite tiles were excavated and disposed of through a subcontracted asbestos abatement contractor.

431 munitions of explosive concern (MEC) items were discovered at the site. All items were found to be inert.

Mr. Hart assisted in Work Plan preparations and also provided on-site construction oversight, soil sampling support, and site QC support.

Awards/Client Commendations:

Received letter of appreciation from the facility for the work performed at Site 30 dated August 1, 2008.

Sample Technician, Yorktown Fuel Farm O&M, 120033, U.S. Navy, Yorktown, VA, 12/2006 - 12/2008

The Shaw groundwater treatment plant located in Yorktown, Virginia is primarily used to recover Navy Special Fuel Oil (NSFO), which is the result of years of leaking underground storage tanks. Mr. Hart acted primarily as a sample technician collecting monthly and quarterly groundwater/treated water and also performed in-field tests using the Dexsil HydroSCOUT oil/water testing system. The goal of the in-field testing of the recovered NSFO was to calculate the percent water of its composition in order to accurately judge its recyclable value and to provide a number to compare with the results achieved by the recycling vendor. With this test Shaw was able to accurately predict the amount of undesired water in the recovered oil and was able to make an educated decision as to whether or not the oil needed further settling time before Shaw shipped it offsite.

Site QC Manager / Sample Technician, Vieques Removal Actions SWMU 6, & 7 and AOC J, & R (Waste Characterization), 116701, U.S. Navy, Vieques, PR, 02/2008 - 02/2008

The overall goal of the waste characterization being performed at sites SWMU 6, SWMU 7, AOC R, and AOC J was to characterize the soil that may be disposed during an upcoming removal action and to decide whether or not the material will be suitable for use as daily cover at the local landfill. A total of 54 waste characterization samples, not including required QC samples, were collected over a four day period. Mr. Hart performed duties both as a sample technician and QC manager for this phase of the

project.

**Accomplishments:**

The sampling event was completed a day ahead of schedule resulting in an early demobilization.

QC Representative / Technical Support, Existing Landfill Closure, 110050, U.S. Navy, Ceiba, PR,  
\$7,213,913.00, 03/2007 - 08/2007

Mr. Hart was a member of a five engineer rotating team, assisting on the project for a duration of 12 weeks between March and August of 2007. Typical duties performed included utilizing a survey total station to place grade stakes, Quality Control support, soil sampling, data interpretation and input, and general field support. Mr. Hart also assisted in preparation of various submittals throughout his time on-site.

Sample Technician, Parole Town Center Ground Water Sampling Event, 108520, Parole Town Center,  
Parole, MD, 11/2006 - 11/2006

Mr. Hart assisted with the sampling and shipment of 31 groundwater sampling wells for VOCs and Chloride. Utilized low-flow sampling technique using a bladder pump/control box setup with a HORIBA flow-through cell. Was able to complete the sampling job at a heavily active commercial construction site, in adverse weather conditions.

**Other Comments:**

The project which this sampling event was in support of went on to receive the National 2009 Phoenix Award for Excellence in Brownfield Redevelopment.

**05/2005 - 08/2005**

***Biological Geographic Information System (GIS) Intern, United States Fish and Wildlife Service, J.N.  
"Ding" Darling National Wildlife Refuge, Sanibel, Florida***

Primarily assisted Refuge biologist with day-to-day GIS (ESRI ArcGIS) and GPS (Trimble GeoXM) needs. Also assisted with routine water quality and wildlife inventory surveys.

**Awards/Honors**

Targeting Zero - Twelve Months With No Incidents - AFETA Camp Peary Program, Shaw E&I, Inc., 2009

Presidents Award (1,000 Days with Zero Incidents) AFETA Camp Peary, Shaw E&I, Inc., 2009

Targeting Zero - Twelve Months With No Incidents - NAVFAC Atlantic Camp Peary Removal Actions RAC IV CTO 97, Shaw E&I, Inc, 2008

Presidents Award (3,000 Days with Zero Incidents) Yorktown Fuel Farm O&M, Shaw E&I, Inc., 2007



# Reactives Management Corporation

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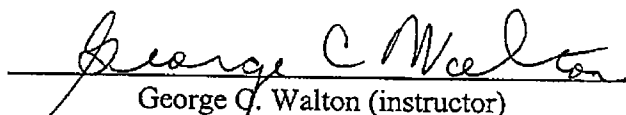
Awards this Certificate of Completion to:

*Michael J. Hart*

for successfully completing a **40-hour Hazardous Waste Operations  
and Emergency Response (HAZWOPER)** worker safety and  
environmental compliance course in accordance with Title 29

Code of Federal Regulations Part 1910.120.

Awarded on July 21, 2006.

  
George C. Walton (instructor)

Certified Hazardous Materials Manager (ML)  
Fellow, American Institute of Chemists  
Certified Safety Executive, W S O



Certificate No.: 076-31-04  
Personal Protective Level: A



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# CERTIFICATE *of* COMPLETION

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Presented To

**Michael J. Hart**

In Recognition of Having Successfully Completed the Prescribed Course of Study For

**24-Hour HAZWOPER Field Experience**

OSHA 29 CFR 1910.120 (e) (3)


Effective Date: **08/09/2006**

I certify that the above trainee has completed this training course as given by The Shaw Group Inc. or one of its subsidiaries.

Edward Wick  
Director, Shaw Training & Development

Don L. Unruh, CIH, CSP  
Director, Environmental Health & Safety Training

PEEL  
HERE

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*Learn and Live*

## Heartsaver® First Aid

**MICHAEL J. HART**

This card certifies that the above individual has successfully completed the objectives and skills evaluations in accordance with the curriculum of the AHA for Heartsaver First Aid Program.

Modules Completed: ☒ A ☒ B ☒ C ☒ D ☒ E

Issue Date **6/10/2009**

Recommended Renewal Date **6/2011**


Training Center **Tidewater Center for Life Support**

TC Address Contact Info **TCLS 757-446-5926**

Course  
Location

Instructor **Deana Kilber**

Holder's  
Signature



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Fill in the circles of the modules **NOT** completed. This card contains unique security features to protect against forgery.

80-1202 R3/08



*This certificate is awarded to*

**Michael Hart**

*for the successful completion of the course*

**8-Hour HAZWOPER Supervisor Training**

*By Shaw E&I*

**Date: 2/2/2010**

A handwritten signature in black ink, appearing to read 'Michael Hart', is located in the bottom right corner of the certificate.



*This certificate is awarded to*

**Michael Hart**

*for the successful completion of the course*

**OSHA 30 Hour Construction Safety**

*By Shaw E&I*

**Date:** 2/2/2010

A handwritten signature in black ink, appearing to read 'Michael Hart', is located in the bottom right corner of the certificate.



*This certificate is awarded to*

**Michael Hart**

*for the successful completion of the course*

**Site Safety Officer**

*By Shaw E&I*

**Date: 2/2/2010**

A handwritten signature in black ink, appearing to read 'Michael Hart', is located in the bottom right corner of the certificate.



*This certificate is awarded to*

**Michael Hart**

*for the successful completion of the course*

**8-Hour HAZWOPER Refresher**

*By Shaw E&I*

**Date:** 3/11/2010

A handwritten signature in black ink, appearing to read 'J. Michael Hart', is located in the bottom right corner of the certificate.



This certificate is awarded to

**Michael Hart**

for the successful completion of the course

**Ground Shipping of Hazardous Materials**

Hours: 8 Credits: \_\_\_\_\_  
(if applicable)



Session Date: 09/16/2010  
For instructor-led course (if applicable)

Completion Date: \_\_\_\_\_  
For online course (if applicable)

Kevin Hubbard, CSP, CET  
Instructor Name, Title  
5011 Apollo Circle  
Instructor Address  
Los Alamitos, CA 90720  
John R. Scott  
John Scott, Vice President  
Environmental Health & Safety





This certificate is awarded to

**Michael Hart**

for the successful completion of the course

**Air Shipment of Dangerous Goods - IATA**

Hours: 7 Credits: \_\_\_\_\_  
(if applicable)



Session Date: 09/17/2010  
For instructor-led course (if applicable)

Completion Date: \_\_\_\_\_  
For online course (if applicable)

Kevin Hubbard, CSP, CET

Instructor Name, Title  
5011 Apollo Circle

Los Alamitos, CA 90720

Instructor Address

John R. Scott

John Scott, Vice President  
Environmental Health & Safety

## David L. Mummert

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### Professional Qualifications

Safety and health professional with over 25 years experience on large, complex hazardous materials remediation projects involving chemical, biological, radiological, and shock sensitive/explosive materials for commercial, DOE and DOD clients. As a Manager of Health and Safety assigned to the Emergency Response Group, responsibilities include developing, initiating, and managing health, safety, and industrial hygiene programs for complex emergency response remedial action and projects. Additionally, he is assigned other large project health and safety management responsibilities.

Mr. Mummert develops and administers industrial hygiene monitoring programs, develops and initiates safety programs, selects respiratory and dermal protection, conducts on-site audits, provides field and client safety consultations, and directs junior industrial hygienists and site safety officers at multiple remedial actions and emergency responses.

He also developed, organized, and conducted table top spill drills and other focused, specific training. Example of these courses include client specific emergency response training, oil spill response training, and the Shaw 45-hour Site Safety Officer course.

### Education

Master of Science, Environmental Health, University of Cincinnati, Cincinnati, Ohio, 1984  
Bachelor of Science, Biology, University of Cincinnati, Cincinnati, Ohio, 1976

### Additional Training/Continuing Education

American Red Cross CPR and First Aid, Findlay, OH, 2005  
OSHA 40-hour HAZWOPER Refresher, Findlay, OH, 2005  
Defensive Driving, Findlay, OH, 2004  
Railroad On-Track Worker, Jacksonville, FL, 2004  
Railroad On-Track Worker Trainer, Jacksonville, FL, 2004  
American Red Cross CPR and First Aid - Trainer, Findlay, OH, 2001  
Trenching/Shoring Competent Person, Findlay, OH, 2000  
Air Shipping Dangerous Goods by IATA, Findlay, OH, 1999  
Level A PPE Training, Trenton, NJ, 1997  
Forklift Operator, Findlay, OH, 1995  
Job Safety Analysis and Hazard Assessment, Findlay, OH, 1995  
OSHA HAZWOPER Supervisor, Findlay, OH, 1989  
OSHA 40-hour HAZWOPER, Findlay, OH, 1987  
Supervisory Skills, Findlay, OH, 1987

### Registrations/Certifications/Licenses

Certified Industrial Hygienist (CIH), 1984, 3303, Active, Nationwide, 11/2008

## Experience and Background

**05/2002 - Present**

***Manager, Health and Safety, Shaw Environmental & Infrastructure, Inc., Findlay, Ohio***

Responsibilities include providing health and safety support to the Emergency Response Group, various high hazard projects, and geographically located large projects. Also supply program CIH support to various government projects.

***The following is a summary of key projects:***

Health and Safety Manager and Onsite SSO, City of Austin, 101201 and 108658, City of Austin, Austin, TX, 11/2004 - 05/2005

Involved with a project to identify and remediate soils contaminated with benzoyl peroxide materials. Developed Health, Safety and Emergency Response contingency plans for handling potentially explosive materials which included establishing minimum distances, personal protective equipment program, coordination with local emergency responders, and air monitoring. Assisted with the onsite training program. Mobilized to the site and was part of the initial investigation team.

Accomplishments:

Accomplished project with a triple zero record.

Project CIH and Onsite Safety Officer, Tin Products, U.S. EPA, Lexington, SC, 11/2002 - 03/2002

Involved with a project to access fire damaged aluminum alkyls tanks and transfer contents to portable containers. Developed Health, Safety and Emergency Response contingency plans, air monitoring program, personal protective equipment program for the pyrophoric material. Assisted with the onsite training program. Mobilized to the site and was part of the transfer team during product recovery and tank cleaning operations.

Accomplishments:

Completed transfer operations with a triple zero record.

**07/1998 - 04/2002**

***Director, Health and Safety, IT Corporation (The Shaw Group Inc. acquired substantially all of the operating assets of The IT Group, Inc., on May 23, 2002), Findlay, Ohio***

Responsibilities included provide health and safety support to the Speciality Services and Emergency Response Group.

***The following is a summary of key projects:***

Health and Safety Manager and Site Safety Officer, Anthrax Remediation Projects, USPS, Various Locations, 10/2001 - 02/2002

Developed Health and Safety plans and responded to three separate facilities which were contaminated with anthrax through bio-terrorism activities. Conducted site-specific employee training, administered respirator fit-testing, coordinated antibiotic prescriptions, supervised decontamination operations, and provided health and safety management.

Project CIH and Onsite Safety Officer, Minot Ammonia Derailment, Canadian Pacific Railroad, Minot, ND, 01/2002 - 01/2002

Part of the initial response team to a derailment involving railroad cars of anhydrous ammonia. Conducted site hazard assessment, developed a health and safety plan, and conducted employee briefings for

personnel which successfully transferred 7 ammonia cars, some of which were leaking.

**Accomplishments:**

Completed project with a triple zero record.

Health and Safety Manager and Site Safety Officer, Mercury Remediation Projects, Various Clients, Various Locations, 09/2000 - 04/2001

Responded to three separate mercury related contamination events; the first involved surveying 13 residential homes where mercury containing gas regulators were spilled, the second involved a classroom where a child released approximately one fluid ounce of mercury, and the third was remediation of an act of mercury vandalism in a high school library facility. Provided onsite health and safety management, developed and conducted air monitoring during the remediation and final clean-up air monitoring using both direct reading and fixed media air sampling methods, and interacted with State EPA and local health officials.

Health and Safety Manager and Site Safety Officer, Okmulgee Refinery Hydrogen Fluoride (HF) Project, Phillips Petroleum Company, Okmulgee, OK, 08/1999 - 01/2000

Developed the health and safety plan and emergency response and contingency plan to cold tap, remove, and neutralize product in a HF Alkylation unit. Project required extensive emergency planning and coordination with local responders, careful selection of respiratory and dermal protection, develop both a personal and perimeter air monitoring program, and development of initial treatment for HF contact. Conducted initial HF briefings for project personnel and Level A use and decontamination procedures. Served as the site safety officer during the project.

Project CIH, Drake Chemical Incineration Project, USACE, Lockhaven, PA, 07/1998 - 10/1999

Project Certified Industrial Hygienist for a multi-year project involving the excavation and incineration of chemically impacted soils and debris. Responsibilities included selection and use of respiratory and dermal protection, industrial hygiene air monitoring program, and modification to the site health and safety plan. Developed work and health and safety plans for opening unknown stainless steel drums. Conducted annual refresher training for local emergency responders.

Health and Safety Manager and Site Safety Officer, North Carolina Disaster Relief Project, FEMA, Various Areas of North Carolina, 07/1999 - 08/1999

Responded to North Carolina following Hurricane Floyd to recover and dispose of large animals and poultry killed by flood waters. Developed health and safety plan, coordinated vaccinations, and supervised health and safety for over 100 employees engaged in this operation.

Health and Safety Manager and Site Safety Officer, Concept Science, State of Pennsylvania, Allentown, PA, 03/1999 - 03/1999

Responded to an explosion at a chemical manufacturing facility that produces hydroxylamine. Developed a health and safety plan which included elements of a demolition plan and project air monitoring requirements. Developed job safety analysis for all the key phases of this disaster remediation and demolition. Following one week as the SSO, returned to the project safety and health management function.

**03/1985 - 06/1998**

**Director, Health and Safety, OHM Remediation Services Inc., Findlay, Ohio**

Progressive experience and responsibilities from Industrial Hygienist to Director, Health and Safety.

Experience and responsibilities included establishing industrial hygiene monitoring programs, training, development of site specific health and safety plans, and management of safety functions.

*The following is a summary of key projects:*

Health and Safety Manager and Site Safety Officer, Shell Belpre, Shell Chemical Company, Belpre, OH, 05/1994 - 12/1994

Responded to initial emergency and remedial activities at a major chemical plant explosion and fire. Performed the initial hazard assessment for multiple chemicals and physical situations and developed the health and safety plan (HASP) for on-site activities. Responsible for the health and safety of approximately 100 employees involving project specific training, development of job safety analyses, and air monitoring. Directed activities of up to six site safety officers.

Project CIH, Weldon Spring Quarry and Building Packages, US DOE, Weldon Springs, MO, 03/1993 - 08/1993

Performed the initial safety and health planning and document preparation for commencement of these two mixed waste remediation projects. These activities included preparation of job safety analyses for each task, coordination of project specific medical surveillance programs, development of project specific personal protective equipment programs, including sourcing and selection of specialty items, project specific emergency response planning, and establishment of project specific industrial hygiene monitoring programs.

Health and Safety Manager and Site Safety Officer, Goose Bay Incineration Project, Canadian Department of National Defense, Happy Valley-Goose Bay, Labrador., 08/1989 - 04/1990

For this 12-month thermal incineration project, Mr. Mummert was responsible for providing 3-hour training sessions on health, safety, and emergency response activities involving PCBs and PCB combustion products for the CDND, base firefighters, and crew members; coordinating site-specific PCB medical monitoring; developing the site safety plan; conducting surface and air monitoring; assisting with coordination of an emergency drill which simulated an aircraft crash into the facility; conducting routine safety audits of the thermal incinerator and feed preparation area; and serving as administrative industrial hygienist and safety manager.

Health and Safety Manager and Site Safety Officer, Moundsville Chemical Plant Decontamination, Olin Corporation, Moundsville, WV, 06/1988 - 10/1989

He was responsible for safety training and supervision for 90-man crew during the decontamination of facility and asbestos removal; developed site safety plan and prepared and implemented air monitoring program; contaminants included toluene diisocyanate, dichlorobenzene, toluene diamine, phosgene, sulfuric acid, dinitrotoluene, formaldehyde, corrosive organic liquids and solids, mercury, and other chemicals.

Health and Safety Manager, TNT Remediation Project, USATHAMA, Point Pleasant, WV, 04/1987 - 08/1987

Developed site safety plan and provided on-site monitoring of excavation and TNT removal from sewer lines; also developed safety procedures for TNT handling and remote burning of explosive compounds.

Health and Safety Manager, Lagoon Closure Project, Major Chemical Manufacturer, Kansas City, MO, 06/1986 - 10/1986

Mr. Mummert was responsible for health and safety management involving the closure of two lagoons contaminated with lead, arsenic, chrome, cadmium, cyanides, and chlorinated solvents and the demolition of concrete structures (project activities included dewatering and stabilization of remaining sludges and earthmoving of soils); developing site safety plan and air monitoring program for personnel, perimeter,

and confined space situations; performing project safety audits; and presenting review of results.

Health and Safety Manager, Explosives Excavation, Major Chemical Manufacturer, Magna, UT, 07/1986 - 09/1986

Mr. Mummert developed site safety plan and provided on-site safety training to, and supervision of, field operations personnel tasked with removal of buried explosives.

Health and Safety Manager, M-Basin Closure, DOE Savannah River Site, Savannah, GA, 05/1986 - 08/1986

Managed health and safety, including radiation safety, on RCRA closure at a DOE facility encompassing an unlined settling basin that received mixed waste effluent from the fuels and target fabrication facility at Savannah River. The M-Basin contained approximately seven million gallons of water and two million gallons of contaminated sludge. SHAW removed, treated, and discharged the free liquids; recovered and stabilized contaminated sludges; consolidated 50,000 cubic yards of metals- and solvents-contaminated sludges from another area to the M-Basin; constructed a cap over the stabilized sludges within the M-Basin; and restored the site.

***10/1981 - 02/1985***

***Industrial Hygienist, Versar New York, Inc., Binghamton, New York***

As senior safety officer for Versar New York, Inc., primary projects involved the decontamination of two buildings contaminated by PCB related fires. Responsibilities included directing industrial hygiene monitoring programs, enforcing site safety plan requirements, and implementing complete personal protective equipment programs. Regular duties also included direction of safety programs focusing on fall protection, demolition, and hot work; assistance with medical surveillance programs; and conducting new employee health and safety training sessions.

***01/1979 - 03/1981***

***Health and Safety Representative, United Union of Roofers, Waterproofers, and Allied Workers AFL-CIO, Washington, DC***

As the industrial hygienist for the United Union of Roofers, Waterproofers, and Allied Workers the primary responsibilities was to conduct comprehensive industrial hygiene surveys on roofing/waterproofing projects throughout the United States. Additional duties included serving as technical liaison with OSHA, NIOSH, and other professional groups, and the development and presentation of multimedia educational materials for workers.

## **Professional Affiliations**

AIHA Engineering Industry Special Interest Group, Co-Chair and Chair, 1993

American Board of Industrial Hygiene, CIH, 1985

American Industrial Hygiene Association, Full Member, 1979

Academy of Kettering Fellows, Full Member, 1978

## **Publications/Presentations**

David L. Mummert, Application of A Risk Matrix Model to Safety Considerations During Disaster Recovery Operations, Ohio Spill Prevention, Planning and Emergency Response Association Conference, Cincinnati, OH, 2005

David L. Mummert, Reader, Impact of Revised Airborne Exposure Limits on Non- Stockpile Chemical Material Program Activites, National Academies of Science, Washington, DC, 2005

David L. Mummert and James Joice, Recognition, Evaluation, and Cleanup Techniques for Mercury Releases in Nonoccupational Environments, American Industrial Hygiene Conference, Dallas, TX, 2002

David L. Mummert, Application of Hazardous Waste Site Methodology to Large Scale Dead Poultry and Farm Animal Recovery Operations, American Industrial Hygiene Conference, New Orleans, LA, 2001

David L. Mummert, Mercury Release Evaluation and Remediation, 10th Annual Business & Industry Environmental Symposium, Manufacturers? Education Council, Cincinnati, OH, 2001

## James R. Joice

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### Professional Qualifications

Mr. Joice has participated in hundreds of planned remediation and emergency response projects. His duties have included the development, implementation, oversight, and enforcement of Health and Safety Plans, developing respiratory protection and Personal Protective Equipment (PPE) programs for working in potentially toxic atmospheres and confined spaces, Site Safety and Health Officer (SSHO), supervising project safety personnel, monitoring subcontractor activities, and verifying regulatory compliance. He also audits program effectiveness, specifies and performs air monitoring, investigates incidents, provides training, and tracks program and project safety performance.

### Education

Bachelor of Science, Zoology, Ohio State University, Columbus, Ohio, 1978

### Additional Training/Continuing Education

OSHA 8-Hour Hazardous Waste Operations and Emergency Response Refresher, Findlay, Ohio, 2008

OSHA 8-Hour HAZWOPER Supervisor, OHM Corporation, 1989

OSHA 40-Hour Hazardous Waste Operations and Emergency Response, OHM Corporation, 1987

### Registrations/Certifications/Licenses

Certified Hazardous Materials Manager (CHMM), 1989, 1807, Active, Nationwide, 08/2008

Certified Industrial Hygienist (CIH), 1991, CP5341, Active, Nationwide, 06/2008

Certified Safety Professional (CSP), 2006, 19155, Active, Nationwide, 01/2007

### Experience and Background

#### *05/2002 - Present*

*Manager, Environmental, Health, and Safety, Shaw Environmental & Infrastructure, Inc., Federal, Findlay, Ohio*

Responsibilities include providing safety and industrial hygiene support to client programs, projects and office staff. Recent assignments have included:

ERRS 1 (Program CIH)

ERRS 6 (Program Health and Safety Manager)

AFCEE WERC (Program Health and Safety Manager)

AFCEE 4P (Program Health and Safety Manager)

FUSRAP Maywood - Maywood, NJ (Program Health and Safety Manager)

FUSRAP SLDS - St. Louis, MO (Project CIH)



FUSRAP SLAPS - St. Louis, MO (Project CIH)

FUSRAP Linde - Tonwanda, NY (Project CIH)

Naval Ammunition Depot - Hastings, NE (Project CIH)

USACE Louisville MARC (Program Health and Safety Manager)

***The following is a summary of key projects:***

Site Safety Officer, Ellsworth Airforce Base, US Army Corps of Engineers, Rapid City, SD, 01/1995 - 11/1997

Installation of several landfills and a large scale soil vapor extraction system with incinerator.

***05/1998 - 05/2002***

***Manager, Health and Safety, IT Corporation (The Shaw Group, Inc., acquired substantially all of the operating assets of The IT Group, Inc., on May 23, 2002), Findlay, Ohio***

Responsibilities include providing safety and industrial hygiene support to client programs, projects and office staff. Assignments included:

Naval Ammunition Depot - Hastings, NE

FUSRAP SLDS - St. Louis, MO

Sunflower Army Ammunition Plant - DeSoto, KS

Lake City Army Ammunition Plant - Independence, MO

NICOR Mercury Restoration Project - Chicago, IL

Alaska Railroad - Talkeetna, AK

***The following is a summary of key projects:***

On-site Health and Safety Manager, NICOR Mercury Restoration Project, NICOR, Chicago, IL, 09/2001 - 09/2002

Inspected thousands of homes for mercury contamination and remediated residential mercury spills.

Site Safety Officer, Minot Anhydrous Ammonia Derailment, Superior Special Services, Inc., Minot, ND, 02/2002 - 02/2002

Transfer of anhydrous ammonia and flaring residual material from damaged railcars.

Site Safety Officer, Alaska Railroad derailment, Alaska Railroad, Talkeetna, AK, 12/1999 - 01/2000  
Transferred jet fuel from damaged railcars.

***06/1996 - 05/1998***

***Manager, Health and Safety, OHM Remediation Services, Corp., Midwest Region, Findlay, Ohio***

Responsibilities include providing on-site safety and industrial hygiene support to client project.  
Assignment included:

Ellsworth Air Force Base

**03/1993 - 06/1996**

***President, Environmental Hygienics, Inc., Findlay, Ohio***

Private consultant. Performed industrial hygiene and safety consulting services for corporations and businesses. Significant field project experience included serving as the on-site Safety and Health Officer at Midway Naval Air Station, Midway Island. Also was adjunct faculty member (Environmental Technologies Program), Owens Community College, Findlay, Ohio, 01/94-05/96. Instructor of environmental science, water and wastewater treatment, and industrial hygiene.

***The following is a summary of key projects:***

***On-site Safety and Health Officer, Midway Naval Air Station, US Navy, Midway Island, 01/1994 - 08/1994***

Managed the site safety and health program during the construction, operation/maintenance of groundwater recovery and treatment, thermal oxidation, and SVE systems; as well as the demolition of large aboveground storage tanks.

**01/1990 - 03/1993**

***Manager, Health and Safety, OHM Remediation Services, Corp., Midwest Region, Findlay, Ohio***

Managed all aspects of the health and safety program for the Midwest Region of OHM Remediation Services Corp. Mr. Joice developed and implemented the safety and health plans and provided on-site safety and health support as required for planned remediation and emergency response projects. He supervised numerous safety and industrial hygiene technicians. He also facilitated safety training, investigated incidents, and audited projects for compliance with procedures and regulations.

**01/1986 - 01/1990**

***Facilities Safety Manager and Regulatory Compliance Coordinator, OHM Remediation Services, Corp., Corporate Headquarters, Findlay, Ohio***

Verified the corporate facilities were in compliance with OSHA and EPA regulations. Mr. Joice managed the safety and hazardous waste compliance programs for the facilities. Provided worker safety training for facilities and field personnel. He also, served as the on-site Safety and Health Officer for numerous remediation and emergency response projects. Conducted site and facility health and safety inspections and developed and implemented site safety and health plans.

**01/1981 - 01/1986**

***Analytical Chemist, OHM Remediation Services, Corp., Findlay, Ohio***

While working from both fixed-base and mobile laboratories, Mr. Joice provided technical and analytical support for remediation projects and emergency response incidents. These projects encompassed a variety of environmental challenges at Super-fund cleanup sites, commercial and military facilities, and at train derailments. Mr. Joice also managed the gas chromatography department at the corporate laboratory in Findlay, Ohio.

***12/1979 - 01/1981***

***Quality Assurance Specialist, UNIVERSAL COOPERATIVES, INC., Napoleon, Ohio***

Mr. Joice managed the quality control laboratory and supervised the formulation department at an agricultural chemical formulation facility. He implemented the quality control procedures for the laboratory operations and conducted quality assurance inspections to verify the products met EPA label specifications. Mr. Joice was also responsible for the tank farm operations and NPDES permitting compliance.

***07/1978 - 11/1979***

***Plant Operator, Municipal Water Treatment Plant, Defiance, Ohio***

Mr. Joice served as a Licensed Plant Operator at a 15-million gallon per day drinking water treatment facility. He was responsible for operation and maintenance, including sampling and monitoring functions.

### **Professional Affiliations**

American Industrial Hygiene Association, Full, 1991

American Industrial Hygiene Association - Northwest Ohio Chapter, Full, 1991

## James A. Dunn Jr

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### Professional Qualifications

Mr. Dunn joined the company in 1994 with over 25 years experience in civil, structural, and environmental engineering design, estimating, supervision, and management. He has served as program and project manager, operations manager and construction manager for both government and private clients on projects involving solid and hazardous waste management, remedial investigations and risk assessments, environmental and geotechnical soils and groundwater investigations; construction of Subtitle D solid waste landfill facilities; construction and operation of groundwater treatment plants; implementation/construction of remedial activities at hazardous waste sites; and implementation of closure activities for RCRA hazardous waste facilities. In addition, Mr. Dunn has provided construction engineering and management services for natural gas, oil, and product pipelines (on land and offshore), pumping stations, compression facilities, and tugs and barges on an international, intrastate, and interstate basis.

As Director, Environmental Operations for Navy East Programs, Jim has the overall responsibility for the profitable execution of all Shaw E & I Navy contracts, fixed price and cost reimbursable worldwide. Reporting to Jim are various program managers throughout Shaw. Jim's duties include reviewing all Navy environmental projects on a monthly basis to ensure adherence to budgets and schedules and to implement any corrective actions to ensure projects meet their goals.

As Program Manager for both the NAVFAC Atlantic Remedial Action Contracts and the Camp Peary AFETA Program, the Rhea Program and the Tikigaq program, Mr. Dunn is responsible for the overall management of all task orders assigned to the Programs. His duties include monitoring and controlling project costs, assignment of personnel consistent with contract requirements, understanding and assuring compliance with CERCLA, RCRA, TSCA and SWDA regulations and their state counterparts and performing as Shaw's chief representative. Mr. Dunn is responsible for reviewing all proposals and estimates for activities on the Program, participating in all proposal negotiations, maintaining cost and schedule tracking and control for the program, providing support and mentoring for all Project Managers and Supervisors, problem solving and resource management for the Programs.

### Education

Bachelor of Science, Civil Engineering, University of Texas at Arlington, Arlington, Texas, 1968

### Additional Training/Continuing Education

OSHA 8-Hour Refresher Training, Shaw E & I, 2010  
Florida PE and Contractor's Review, State of Florida, 2010  
RITS Seminar, Norfolk, VA, 2010  
AMA The Voice of Leadership, AMA Offices, New York, NY, 2007  
Project Manager Training, Shaw E & I, 2006  
Karrass Negotiating Skills, Baton Rouge, LA, 2004  
Navy IR Conference, U.S. Navy, 2002  
Total Environmental Restoration Contract Training, U.S. Army Corps of Engineers, 2001  
OSHA 40-Hour Health and Safety Training, Ensco Environmental Services, 1987

### Registrations/Certifications/Licenses

General Contractor, 1994, CG-C053638, Active, Florida, 08/2012  
Pollutant Storage System Contractor, 1991, PC-C049511, Active, Florida, 08/2012

Professional Engineer, Civil, 1976, 15901, Active, Louisiana, 03/2011  
Professional Engineer, Civil, 2001, 58417, Active, Florida, 02/2011  
General Contractor, 1996, G13440A, Active, South Carolina, 12/2010  
General Contractor, Civil, 1996, 52824, Active, North Carolina, 12/2010  
General Contractor, 1995, 21710, Active, Tennessee, 12/2010  
General Contractor, 1992, 2705-075374A, Active, Virginia, 12/2010  
General Contractor, 1991, 084635, Active, Arizona, 12/2010  
Professional Engineer, Civil, 1991, 70647, Active, Texas, 09/2010

## **Experience and Background**

### ***03/2008 - Present***

***Director, Environmental Operations, Navy Programs, Shaw Environmental & Infrastructure, Inc., Norfolk, Virginia***

Mr. Dunn, as Director, is responsible for all Navy Environmental Programs including two \$125M Remedial Action Contracts, cost plus award fee, for NAVFAC Atlantic, one \$25 fixed price contract with Camp Peary AFETA, one \$10M fixed price contract with Rhea Engineers, one \$5M fixed price contract with Tikigaq, and one proposed \$300M contract with Advent Environmental.

### ***03/2005 - Present***

***Program Manager, Shaw Environmental & Infrastructure, Inc., DoD Federal, Norfolk, Virginia***

Mr. Dunn, as Program Manager, is responsible for the overall management of a program valued at \$125 million. His duties include management of all task orders, assignment of Project Managers, Superintendents and support personnel for each individual task order matching qualifications with project needs, maintaining compliance with all small business utilization goals for the contract, assuring compliance with all applicable federal, state and local regulations, monitoring and assuring budget compliance and maintaining client satisfaction through meetings and frequent correspondence and discussions. In addition, Mr. Dunn is deeply involved in mentoring his staff and maintaining succession planning.

### ***01/2003 - Present***

***Program Manager, Shaw Environmental & Infrastructure, Inc., DoD Federal, Norfolk, Virginia***

As Program Manager, Mr. Dunn's responsibilities include overall management of a program valued in excess of \$30 million. Mr. Dunn is responsible for the overall management of all task orders assigned to the Program. His duties include assignment of Project Managers, Superintendents and support personnel for individual task orders whose qualifications are best suited to the project type, maintaining compliance with SB/SDB/WOSB utilization requirements for the contract, understanding and assuring compliance with all applicable regulations, monitoring and assuring adherence to all project budgets, and maintaining client satisfaction through frequent discussions.

### ***The following is a summary of key projects:***

***Program Manager, LANTDIV RAC IV, 842391, Naval Facilities Engineering Command Atlantic, Virginia Beach, VA, \$125,000,000.00, 03/2005 - Present***

As Program Manager for the LANTDIV RAC IV Contract, Mr. Dunn is responsible for the overall management of all task orders assigned to the Program. His duties include supervising a cadre of nine Project Managers performing construction and environmental services throughout the LANTDIV AOR. Monitoring and controlling project and program costs and assignment of personnel consistent with the

contract requirements, understanding and assuring compliance with CERCLA, RCRA, TSCA, SWDA and OSHA regulations and their state counterparts are further duties assigned to Mr. Dunn as Shaw's chief representative on the contract.

**Accomplishments:**

Award fees on this cost plus award fee contract have exceed 96% for the past two reporting periods.

Project Manager, LANTDIV RAC IV, TO #18, Reverse Osmosis Treatment System Upgrades, 100385, Naval Facilities Engineering Command (NAVFAC), Manama, Bahrain, \$450,000.00, 09/2003 - 03/2005  
Navy RO plant had been experiencing premature element failures and suffers from non-automation of systems. Shaw engineers re-evaluated the system and suggested changes to the proposed revisions which resulted in lower operating costs of the treatment system. Automation was performed by a Shaw local team partner, A. A. Nass, with staff in Manama. Instrumentation upgrades and automation were also performed by another Nass company which supplied the hardware and software from in-country sources. Project was implemented during the winter months when demand was at its lowest during the year.

Project Manager, Soil and UST Removal, Please provide Client Name, San Juan, Puerto Rico, 05/2003 - 12/2003

Project involved selective excavation of lead contaminated soils from an area of one city block in Old San Juan within blocks of the governmental offices. Archaeological artifacts and large, native trees were items of concern to both the property owners and the regulators. Field sampling and testing techniques were employed and Jim was instrumental in gaining regulatory approval to use on-island landfill facilities for waste disposal with a resultant cost savings in excess of 25% of the total project costs.

**Accomplishments:**

Field sampling and testing techniques employed was instrumental in gaining regulatory approval to use on-island landfill facilities for waste disposal with a resultant cost savings in excess of 25% of the total project costs.

**05/2002 - 02/2005**

***Deputy Program Manager, Shaw Environmental & Infrastructure, Inc., Virginia Beach, Virginia***

Mr. Dunn was responsible for all activities conducted in support of project executions for the LANTDIV program. His duties included mentoring and supporting all Project Managers and Supervisors in the fulfillment of their duties, assuring adequate staffing for all projects, maintaining client satisfaction through frequent dialogue, electronic mail and meetings, assuring consistent project reporting through standardized reporting procedures and formats and serving as the Program Manager when necessary.

***The following is a summary of key projects:***

Deputy Program Manager, LANTDIV RAC, 842392, Naval Facilities Engineering Command Atlantic, Virginia Beach, VA, \$125,000,000.00, 04/2002 - Present

As Deputy Program Manager, Mr. Dunn reviewed all proposals and estimates for activities on the LANTDIV Program, participated in all proposal negotiations, maintained cost and schedule tracking and control for the program, provided support and mentoring for all Project Managers and technical support staff in the Virginia Beach Office. Additional duties included resource management and problem solving for all projects conducted in support of the Program.

10/1994 - 05/2002

*Senior Project Manager, IT Corporation (The Shaw Group, Inc., acquired substantially all of the operating assets of The IT Group, Inc., on May 23, 2002), Alpharetta, Georgia*

Mr. Dunn was responsible for all aspects of hazardous and toxic waste remediation projects as well as communicating and coordinating with the customer. His duties included assuring a safe and healthy work environment, fulfilling regulatory requirements and coordinating subcontractor activities. He utilized Shaw's Contract Management System to track and modify remedial activities and monitor project costs. He prepared daily status reports which provide justification for all project costs and ensures that all project milestones are met. He also assumed the responsibilities of the QC Manager on select projects and ensured that all project milestones are met. He also took on the responsibilities of the Site QC Manager on select projects and ensured that all aspects of hazardous waste site remediation adhere to the quality control program specifications, the USACE Three Step Quality Process, and engineering requirements.

***The following is a summary of key projects:***

Project Manager, LANTDIV RAC III, TO #50, Thermal Desorption, 803011, Naval Facilities Engineering Command, MCB Camp Lejeune, North Carolina, \$3,865,000.00, 12/1999 - 06/2002  
Managed the remedial action design and removal action at Site 89, Camp Geiger Defense Reutilization and Marketing Office at Camp Lejeune, North Carolina. Project involved low-temperature thermal desorption (LTTD) of 36,000 tons of soils contaminated with perchloroethane. Managed extensive site preparation, including engineered containment pads for the fuel source and the LTTD units storage bins for excavated and treated soils, and the establishment of an on-site laboratory to provide real time analytical data. Other activities included relocating, extending, and repairing fencing around the site to eliminate contact with potentially contaminated surface waters, and adding two floating fountain aerators to enhance to degradation of any organic contaminants present in the surface water. Through prudent negotiation of the cleanup levels with the regulators and pricing with the thermal desorption vendor, significant cost savings (~50%, \$3M) were realized over the government cost estimate.

**Accomplishments:**

Through prudent negotiation of the cleanup levels with the regulators and pricing with the thermal desorption vendor, significant cost savings (@50%, \$3M) were realized over the government cost estimate.

Project Manager, Aggressive Fluid Vapor Recovery, Naval Facilities Engineering Command, MCB Camp Lejeune and MCAS Cherry Point, North Carolina, 06/1998 - 04/2002  
Implementation of an innovative technology for the removal of free phase product from groundwater. Process involves utilization of a vacuum truck and specialized wellhead assemblies coupled with a portable stack assembly to effect free product recovery. To date, two of eight sites have been rendered product free, four are approaching clean and two continue to produce product. Recovery rates vary from less than 100 pounds to in excess of forty thousand pounds.

Project Manager, LANTDIV TO #14, Air Sparging/Soil Vapor Extraction/Bio-Sparging System Implementation, Hadnot Point Fuel Farm, 920764, Naval Facilities Engineering Command (NAVFAC), MCB Camp Lejeune, North Carolina, \$3,093,063.00, 05/1998 - 04/2002  
Directed the constructing of air and bio-sparging system coupled with a soil vapor extraction system dedicated extraction wells and aggressive fluid vapor recovery activities to remediate petroleum contamination at the Hadnot Point Industrial Area at Camp Lejeune, North Carolina. After operation of the systems had been underway for over a year and free product had been discovered at depths of over 100 feet, initiated a geophysical investigation to delineate the subsurface conditions at the site, a former

fuel farm at the Hadnot Point Industrial Area. This ongoing investigation had already revealed the presence of subsurface voids at the site. Innovative design of additional components to the remedial system will follow completion of the investigation. Preliminary findings of the geophysical investigation will be presented at the 2002 IR Conference in February 2002.

Project Manager, LANTDIV RAC I, TO #15, Groundwater Treatment Plant Construction and Operation, 18040, Naval Facilities Engineering Command, MCB Camp Lejeune, North Carolina, 10/1994 - 04/2002  
Construction of a 500 gpm groundwater treatment plant. Major cost savings implemented by optimization of design including splitting flow from deep and shallow aquifers to reduce iron removal requirements. During the operational phase of the project, Mr. Dunn has implemented trend analyses to monitor the progress of the treatment system and to monitor the decrease in contaminant levels within the groundwater plume. These analyses have resulted in optimization of the pumping system and led to placement of additional extraction points to enhance contaminant recovery rates.

Project Manager, Petroleum-Contaminated Groundwater Remediation, Naval Facilities Engineering Command (NAVFAC), MCAS Cherry Point, North Carolina, 04/1997 - 11/2000

At the site of a former service station, a contaminated groundwater plume, approximately three acres in size required remediation. A series of vertical injection wells coupled with horizontal vent wells was employed. The equipment compound was located to utilize existing landscaping as a buffer and a fence with architectural slats surrounded the compound. Due to the proximity of the general Base populace, carbon cells were employed to reduce the possibility of airborne emissions of the off-gases.

Project Manager, Petroleum-Contaminated Groundwater Remediation, Four Sites, Naval Facilities Engineering Command (NAVFAC), MCB Camp Lejeune, North Carolina, 12/1996 - 06/1999

Installed air sparging and SVE systems at four sites to remediate petroleum contaminated groundwater and soils. Within the first six months, two of the sites cleaned-up completely and the remaining two sites showed drastically reduced levels of contamination. Systems design was unitized to enable reuse at other sites within the Base.

Project Manager, Pesticide-Contaminated Soils Remediation, Naval Facilities Engineering Command (NAVFAC), MCB Camp Lejeune, North Carolina, 11/1995 - 12/1998

At Mr. Dunn's suggestion, project activities were revised to include field screening to determine limits of excavation prior to mobilization of the entire remediation crew. An on-site gas chromatograph was used to fully delineate areas to be excavated. Upon completion of excavation, confirmation sampling was conducted to verify that action levels had been met. Excavated materials were routed for disposal via chemical oxidation and stabilization at permitted off-site hazardous waste facilities.

Project Manager, LANTDIV RAC I, TO #94, Biocell Construction and Operation, Naval Facilities Engineering Command (NAVFAC), MCB Camp Lejeune, North Carolina, 08/1995 - 06/1998

Supervised the design, permitting, construction and operation of a 1,000 cubic yard biocell for the treatment of petroleum-contaminated soils. Cell was located adjacent to groundwater treatment plant to facilitate handling of excess liquids.

Project Manager, Facilities Demolition and Cap Construction, PS488, SoGreen Site Generators Group, Tifton, Georgia, 06/1996 - 07/1997

Demolition of buildings and associated process equipment at a former fertilizer formulation facility. Activities involved decontamination by pressure washing, cleanliness verification and recycling of metals. Non-intrusive surveying methods were employed to evaluate subsurface site conditions. Successfully negotiated with Georgia Environmental Protection Division concerning a modification to the cap design to permit the use of geosynthetic material in lieu of clay resulting in favorable cost and



schedule variances.

Project Manager, TPH Soils Remediation, Naval Facilities Engineering Command (NAVFAC), MCB Camp Geiger, Jacksonville, North Carolina, 10/1994 - 06/1997

Project involved utilization of immunoassay field screening methods to determine levels of contamination in each truckload of excavated soils. Prior to initiation of construction, various immunoassay kits were evaluated to determine the most cost-effective, reliable test kit. Project doubled in size from the engineer's original estimate. All TPH-contaminated materials were routed to recycling recovery.

Project Manager, Solvent-Contaminated Soils Remediation, Naval Facilities Engineering Command (NAVFAC), MCB Camp Lejeune, North Carolina, 10/1995 - 05/1997

Approximately 17,500 cubic yards of soil in Area of Concern 1 were remediated by construction and operation of a soil vapor extraction system consisting of eight vertical extraction wells spaced around one horizontal injection well. This enhanced method resulted in the removal of in excess of 15,000 pounds of volatile organic constituents in less than five months of operation.

Project Manager, LANTDIV RAC I, TO #110, PCB-Contaminated Soils Remediation at Ranges A, B and D, Harvey Point Defense Testing Activity, 18641, Naval Facilities Engineering Command (NAVFAC), Hertford, North Carolina, \$898,559.00, 03/1996 - 11/1996

Unique project performed in two phases to accommodate schematic of testing ranges. Phase II involved the testing, loadout, transportation and disposal of stockpiled TSCA regulated and TSCA non-regulated soils from Range A. Product was performed during a weekend shutdown. Phase II involved the excavation, loading, transportation, and disposal of TSCA regulated and TSCA non-regulated soils from three testing ranges. Field confirmatory analyses utilizing immunoassay methods were employed to provide quick results to determine if action levels had been met. Major savings to transportation and disposal costs were achieved through prudent negotiations with vendors.

Project Manager, Utilities Provision, Naval Facilities Engineering Command (NAVFAC), MCB Camp Lejeune, North Carolina, 06/1995 - 08/1996

Siting, permitting, and construction of approximately 1-1/2 miles of 1,247 KVA overhead power line through five wetland areas to provide power for an in-well aeration treatability study. Wetland issues were discussed and negotiated with the U.S. Army Corps of Engineers, Wilmington, North Carolina District. Project also involved improvements to site access via 2-1/2 miles of unimproved roadways/trails and provision of temporary power for a 30-day period. Secondary power service to the test area utilized flexible conduit with coated conductors from the OHM supplied distribution center.

Project Manager, Underground Storage Tank (UST) Removal, Naval Facilities Engineering Command (NAVFAC), MCB Camp Lejeune, North Carolina, 05/1995 - 03/1996

The objective of the remedial action undertaken by OHM at Building 25 was to locate and remove any USTs, excavate soils in the area that exceeded the cleanup goals provided in the project specifications, and dispose of soils and USTs off-site. Ancillary work items included the investigation of the surficial aquifer to determine if contaminants were present and the relocation of air compressor shed. Thorough evaluation of disposal alternatives resulted in a substantial cost savings by utilizing chemical oxidation followed by stabilization instead of incineration.

Project Manager, PCB and Pesticide Contaminated Soils Remediation, Naval Facilities Engineering Command (NAVFAC), MCB Camp Lejeune, North Carolina, 10/1994 - 12/1995

Due to the relatively high cost of incineration disposal, initial project activities were revised to include a complete field screening of each of four sites to more precisely delineate the extent of contamination. To effect this activity in the most cost-effective manner, a gas chromatograph equipped with dual columns

and an auto-sampler was installed in the field offices. Areas of concern were sampled utilizing a 10 feet by 10 feet grid pattern. Analytical results were utilized to expand the grids when necessary. Results of this prescreening process reduced the quantities of material excavated and routed to disposal. Additionally, Mr. Dunn was influential in negotiations with the regulatory agencies which resulted in an order of magnitude modification of the action levels for PCB-contaminated soils.

**10/1990 - 10/1994**

***Project Director, Roy F. Weston, Inc., Norcross, Georgia***

Mr. Dunn was responsible for all aspects of hazardous and toxic waste remediation projects as well as communicating and coordinating with the customer.

***The following is a summary of key projects:***

Project Manager, Groundwater Remediation, Cabot Carbon Superfund Site, Cabot Corporation, Gainesville, Florida, 06/1992 - 10/1994

Initial activities included development of Remedial Design Plan, review of Record of Decision and Consent Decree, subsurface explorations and preparation of Field Sampling Plan, Quality Assurance Project Plan, and Health and Safety Plan. Subsequent tasks included evaluation of necessity for treatability studies, preparation of project schedule, groundwater flow modeling, remedial design including cleanup goals and ARARs, complete engineering drawings, equipment specifications, assistance with regulatory reviews, bid solicitation for remedial design implementation, oversight of construction, and operation and maintenance oversight of the completed treatment system.

Project Director, Subtitle D Landfill Construction and Closure, Nassau County, Florida, Nassau County, Florida, 06/1991 - 08/1994

Independent third party oversight of construction of a state-of-the-art solid waste facility and closure of three existing unpermitted sites. Assumed duties of Interim County Solid Waste Director for a one-year term.

Landfill construction included provision of quality assurance services for a slurry wall system, the composite liner system including natural and synthetic materials and installation of dewatering ponds. Negotiated permit variances with the state agency to allow inclusion of a major industrial wastestream into the municipal landfill facility. Siting, permitting, design and construction of a mulching composting facility for yard wastes.

Project Director, Underground Storage Tank Assessment and Remediation, Batson Cook, Various Locations, Georgia, 12/1992 - 08/1993

Contamination evaluation for four sites involving soils and groundwater contamination. Initial activities included soil sample procurement and analyses, monitoring well installations, groundwater sampling and analyses, aquifer slug and specific capacitance testing, generation of plume maps and performance of risk assessment. Initial site characterization reports were prepared and submitted to Georgia EPD, followed by preparation and submission of Corrective Action Plans. Subsequent activities included design and implementation of groundwater remediation systems and remediation of contaminated soils.

Project Director, Remediation of Power Plant Site, City of Austin, Austin, Texas, 10/1990 - 11/1991

Cleanup activities at the site of a former power plant included formulation of work plan, health and safety plans and design specifications and implementation of remedial methods for PCB and asbestos contaminated soils and debris. Closure of a large diameter wet well included contaminated debris removal and water treatment and excavation and demobilization of underground storage tanks.

Project Director, LCH Reclamation, Conoco, Inc., Lake Charles, Louisiana, 10/1990 - 08/1991  
Installation of pumping facilities, loading pad, and fixed air monitoring stations to permit pumping, transportation, and recycle/reclamation of more than 1.6 million gallons of product, while maintaining a water blanket for odor suppression. Follow-up activities included the removal, transportation and incineration disposal of pumpable sludges while continuing to maintain water blanket. Subsequent activities will include soil treatment (stabilization, fixation and/or removal) and design and implementation of a groundwater remedy.

***04/1989 - 09/1990***

***Operations Manager, Encor, Baton Rouge, Louisiana***

Responsible for the operations of four 100 cubic-foot dewatering presses and three environmental drilling rigs. Duties included bidding, planning and scheduling, start-up, project execution, and demobilization and closure.

***07/1988 - 03/1989***

***Vice President, Operations, TSD Remedial Services, Baton Rouge, Louisiana***

Responsible for all business development, bidding, and client contact activities for remedial construction.

***11/1987 - 06/1988***

***Project Manager/Estimator, Ensco Environmental Services, Baton Rouge, Louisiana***

Responsible for estimating and directing all remedial project activities.

***The following is a summary of key projects:***

Project Director, PCB Remediation, Enron Gas Producing Company, Houston, Texas, 01/1988 - 06/1988  
Site investigations soil sampling and analyses, work plan development, removal of contaminated soils and debris, transport and disposal and site restoration for three facilities in Texas. Activities at one site involved decontamination and demolition of a gas conditioning/compression plant which included removal and disposal of asbestos pipe and vessel insulation. Project guidance activities included client liaison at head office and on-site participation in negotiating transportation and disposal subcontracts and assistance in scheduling of personnel.

Project Director, Closure of Wood Treating Facility, Cavenham Forest Products, Salisaw, Oklahoma, 11/1987 - 06/1988

Project Director during the closure of a wood products treatment facility in Oklahoma. Overall project direction and guidance for decontamination and demolition of process equipment and attendant structures, chemical fixation of various sludges contained within lagoon.

***04/1986 - 10/1987***

***President, Dunn Pipeline Company, Lafayette, Louisiana***

Owned and operated Dunn Pipeline Company

***01/1979 - 04/1986***

***Vice President of Offshore Operations, Ingram Marine Construction, Lafayette, Louisiana***

Responsible for all operations of three offshore pipelaying/jetting barges and associated marine

equipment and personnel. Provided estimating, program management, and customer relations services throughout the Gulf of Mexico region.

**01/1979 - 12/1979**

***Assistant Chief Estimator, Morrison Knudsen, New London, Connecticut***

Performed estimates for marine work throughout the East Coast of the United States and the Caribbean. Supervised two engineers and two staff estimators.

**01/1971 - 01/1979**

***Project Manager, Santa Fe International, Orange, California***

Coordinated efforts for the construction of two offshore barges, one in Hamburg, Germany and one in Amsterdam, Holland. both vessels were constructed within budget and on-time. As operations manager in Houma, Louisiana, directed a staff of three project managers and oversaw the operations of three offshore pipelaying and jetting barges.

**01/1970 - 12/1971**

***Field Office Engineer, Carter & Burgess, Ft. Worth, Texas***

Performed quantity takeoffs and checked storm sewer construction for the Dallas Fort Worth regional airport. Checked contractor's earthmoving quantities by field surveying of cut and fill areas.

***The following is a summary of key projects:***

**Field Engineer, DFW Regional Airport Construction, DFW Airport Authority, Euless, TX, 06/1970 - 01/1971**

Initial grading and drainage for construction of DFW Airport

Accomplishments:

Performed reinforced concrete stormwater pipe inspections and testings; performed takeoffs on spine road construction; verified daily earthwork totals for two general contractors

**01/1968 - 12/1970**

***Offshore Engineer, J. Ray McDermott, New Orleans, Louisiana***

Provided field engineering services for various derrick and pipelaying barges operating in the Gulf of Mexico and offshore Gabon, Africa.

### **Professional Affiliations**

Virginia Society of Professional Engineers, Member, 2002

Society of American Military Engineers, Member, 2002

Project Management Institute, Member, 2000

American Society of Testing and Materials, Member, Committee E-50, 1991

American Welding Society, Member, 1976

Louisiana Engineering Society, Member, 1976

American Society of Civil Engineers, Member, 1968

National Society of Professional Engineers, Member, 1968

### **Publications/Presentations**

Dunn, Jr., J. A. and Lori P. Reuther, "Downward Migration of LNAPL at the Hadnot Point Industrial Area, Marine Corps Base, Camp Lejeune, North Carolina", presented at UMass Soils, Sediments and Water Conference, Massachusetts, 2002

Dunn, Jr., J. A., "A Guide to UST Regulations", Acadiana Safety Association, Lafayette, Louisiana, 1990

Dunn, Jr., J. A., "An Offshore Pipeline", presented at American Welding Society Chapter Meeting, Lafayette, Louisiana, 1985

Dunn, Jr., J. A., "Riser Installation", presented at the Offshore Pipeline Contractors Association Conference, Lafayette, Louisiana, 1984

## William L Hughes

### Professional Qualifications

William Hughes, RG, is a project manager for Shaw Environmental & Infrastructure, Inc.'s Norfolk, Virginia office. He currently serves as a project manager on several projects under Shaw Environment and Infrastructure's NAVFAC Atlantic Remedial Action Contract, Camp Peary's ID/IQ remediation contract and Defense Energy Support Center's (DESC) FISC Norfolk environmental contract.

He also has extensive experience employing a variety of remediation technologies. He currently manages projects in Virginia, North Carolina and Puerto Rico. Mr. Hughes has experience managing a variety of remediation programs via in situ bioremediation, thermal enhancement, air sparging, dual phase extraction, soil vapor extraction (SVE), pump and treat, and other treatment approaches.

### Education

Master of Science, Geology, San Jose State University, San Jose, California, 1988

Bachelor of Science, Geology, San Jose State University, San Jose, California, 1984

### Additional Training/Continuing Education

The Ultimate Project Manager, Chapter 1: The Changing PM Role, Red Vector On-Line Training, Virginia Beach, VA, 2008

Managing Chaos, American Management Association (AMA), Washington, DC, 2008

UFP Quality Assurance Project Plan Training, Virginia Beach, VA, 2008

Munitions Response Site Management, Naval Civil Engineer Corp Officers School (CECOS), Virginia Beach, VA, 2008

Leadership Challenge Part 1: What Leaders Do, Red Vector On-Line Training, Virginia Beach, VA, 2007

OSHA Construction Safety (10 Hour), Virginia Beach, VA, 2006

Disaster Site Worker, Virginia Beach, VA, 2006

Basic UXO Training (ITRC), Austin, TX, 2003

OSHA Confined Space Entry Training, Chesapeake, VA, 1994

OSHA Excavation and Trenching Safety Regulations Competent Person Training, Chesapeake, VA, 1994

Principles of Groundwater Hydrology, National Ground Water Association (NGWA), Tucson, AZ, 1994

OSHA 8-Hour Supervisor Training, Houston, TX, 1991

OSHA 40-Hour Hazardous Waste Activities Training, Chicago, IL, 1990

### Registrations/Certifications/Licenses

Geologist, 1996, 2801-001307, Active, Virginia, 08/2011

Geologist, 2002, 1866, Active, North Carolina, 06/2011

Professional Geologist, 1998, G1795, Active, Oregon, 06/2011

### Experience and Background

#### *10/2009 - Present*

*Deputy Program Manager, Shaw Environmental & Infrastructure, Inc., Norfolk, Virginia*

Serves as Deputy Program Manager for the NAVFAC Atlantic Remedial Action Contract. In this position he provides support to the Program Manager in the overall management of a program valued at \$125 million.

His duties include management of all task orders, assignment of Project Managers, Superintendents and support personnel for each individual task order matching qualifications with project needs, maintaining compliance with all small business utilization goals for the contract, assuring compliance with all applicable federal, state and local regulations, monitoring and assuring budget compliance and maintaining client satisfaction through meetings and frequent correspondence and discussions.

**08/2001 - Present**

***Project Manager, Shaw Environmental & Infrastructure, Inc., Norfolk, Virginia***

Mr. Hughes serves as a project manager on several projects under the LANTDIV RAC contracts. He is responsible for ensuring the smooth flow of turnkey remediation projects from the initial design phase to project implementation. This includes scheduling, budgeting, technical oversight, interfacing with regulatory agencies, and serving as a client liaison. These projects are cost plus award fee and fixed price.

***The following is a summary of key projects:***

Project Manager, AFETA-7 Camp Peary Site 49F Southern Swale Removal Action, AOI-12 Housekeeping Action, 137057, Armed Forces Experimental Training Activity Camp Peary, Williamsburg, VA, 09/2009 - Present

Project involved the following activities:

- Perform removal action of PCB contaminated soils from along the southern swale. This included the preparation of a work plan, mobilization of equipment and personnel, clearing and grubbing of the site, excavation of approximately 500 tons of soil, site restoration and preparation of construction completion report.
- Perform a housekeeping action at Area of Interest (AOI) No. 12 near the gate house. This activity involved the following tasks: prepare a work plan, mobilize personnel and equipment to the site, remove surface debris, perform site restoration and prepare a construction completion report. Surface debris included metal, transite tile, creosote timbers, and household waste.
- Perform debris removal at AOI-7, former fire training facility.

**Accomplishments:**

Project was performed within budget. This project was fixed price.

**Awards/Client Commendations:**

Quote from an e-mail from Walter Bell of the Navy dated August 19, 2010 regarding the work performed at Site 49F.

"This project wasn't contracted with the RAC; however, I was very impressed with the visual quality of the excavation work and the attention to detail to site management that was evident during my site visit with city officials."

**Project Manager, DESC Craney Island Tank 272, DLA Energy, Portsmouth, VA, 06/2009 - Present**

Project involves the operation and maintenance of a free product recovery system. The system consists of a dual-phase extraction and treatment system and three skimmer units. The dual-phase extraction and treatment system removes floating free product and water and dissolved-phase petroleum product via suction tubing and hard pipe slaved to two liquid ring vacuum pumps. Bulk fluids are captured from the surrounding subsurface through capture trenching, groundwater wells, and at a weir located near the site. After extraction, the bulk fluids are initially treated via a series of two-phase separation steps. The first step removes gas-phase components from the bulk fluid. The subsequent step separates petroleum from

water in a slant ribbed coalescing oil/water separator (OWS). The aqueous phase is transferred to a surge tank and then pumped through two polishing units.

The polishing units include clay and activated carbon filled pressure vessels connected in series. The clean water is discharged to the Craney Island storm drain system. Oil separated in the process and residual materials used in the treatment process are collected and disposed of in accordance with applicable local, state, and federal regulations.

The skimming system includes a down-hole selective oil skimmer, solar panel and power regulator, 12 volt power source, 12 volt oil-less compressor, a double diaphragm pump, hose, 24-gallon temporary product storage tank, and solid state control circuitry. Floating product is recovered by the skimmer through a selective membrane and periodically transferred to the on-board storage tank using compressed air for the motive force.

Also included is the semi-annual sampling of groundwater monitoring wells, monthly discharge sampling and reporting and quarterly reporting.

**Accomplishments:**

Project is a hybrid of fixed unit price and cost plus components.

Project Manager, AFETA-6 Camp Peary Site 53/53A and Site 61 Housekeeping Actions, Armed Forces Experimental Training Activity Camp Peary, Williamsburg, VA, 06/2009 - Present

This is the sixth task order Shaw's ID/IQ Contract with AFETA Camp Peary. It involved the following activities:

Performed housekeeping action at Site 53/53A. The debris included coal, metal, concrete, corrugated piping with asbestos insulation, steel railroad rails and tires. The area was cleared of all vegetation and debris was excavated and disposed. The type and thickness of the debris was recorded using a GPS with subfoot accuracy. This information was provided to the Navy CLEAN Contractor for use in further environmental investigations.

Performed housekeeping action at Site 61. This included the removal 8,000 tons of surface debris from a wooded area. The debris included metal debris, ash, transite tile, concrete and cinder blocks. The location of all debris piles was recorded using a GPS with sub-foot accuracy. This information was provided to the Navy CLEAN Contractor for use in additional environmental studies. A construction completion report was prepared and submitted to the Camp Peary Partnering Team for review and comment.

Project Manager, RAC5 CTO-10 AFETA Camp Peary, Work Plan Preparation and Monitoring Well Abandonment, 133553, NAVFAC Atlantic, Armed Forces Experimental Training Activity Camp Peary, Williamsburg, Virginia, \$164,591.00, 09/2008 - Present

Prepare work plans for the removal of debris at Sites 53, 53A and 61. These documents were reviewed by AFETA Camp Peary, Virginia DEQ and Navy CLEAN contractor. Groundwater monitoring wells were abandoned at six sites.

**Accomplishments:**

Due to underruns in the cost to prepare the Site 53/53A and Site 61 debris removal work plans an additional work plan (Site 49F Non-Time Critical Removal Action) was prepared through the use of a concurrence letter.

Project Manager, CTO-97 Camp Peary AFETA, Site 30 Removal Action, 126647, US Navy, NAVFAC Atlantic, Camp Peary, \$9,699,457.00, 05/2007 - Present

Mr. Hughes was responsible for the successful execution of a removal action at Site 30, Porto Bello



Disposal Area. This non-time critical removal action (NTCRA) was posed to address contaminated soil and debris areas in the terrestrial portion of the site that may pose unacceptable risks to human health and ecological receptors.

The overall objective of this action was to mitigate direct contact by human and ecological receptors with contaminated soil through removal and disposal of contaminated soil. All removal activities were done in accordance with the approved work plan awarded by AFETA Camp Peary.

Shaw was responsible for the clearing/grubbing, and site setup operations in accordance with the Site 30 EE/CA. A lay down pad and decontamination pad were constructed at the site. Clearing and grubbing was conducted in a manner consistent with all Applicable of Relevant and Appropriate Requirements (ARARs). Approximately 30,000 cubic yards of soil and debris were excavated from the site in accordance with EE/CA, Removal Action Alternative number 3. The soils were contaminated with arsenic, lead, antimony, and thallium. Following the removal of the debris and contaminated soil, the site was regarded and restored. A pre and post-removal site survey was conducted in accordance with the EE/CA.

This task order was modified to include the following scope:

1. Conduct a hot spot removal within the marsh located to the south of Site 30.
2. Perform a removal action at Site 55.
3. Perform a removal action at Site 60.
4. Perform a removal action at Site 21.
5. Perform a removal action at Site 25. This removal action involved the excavation of PCB contaminated soil and debris. While excavating spent 3.5 inch rocket motors were discovered. Work was stopped while NOSSA was notified and an Explosive Safety Submittal (ESS) Determination was prepared. Work was allowed to continue however some areas were excluded from work until an ESS could be prepared. While excavating Shaw encountered a 60mm mortar projectile was discovered a depth of 6-feet. Work was stopped and Camp Peary was notified of the discovery.
6. Exploratory trenching was performed at the conference center construction site to determine if an asbestos lined pipe was present. This line was used to transfer steam to the houses located on the base. Trenching revealed that the pipe was not present.

Awards/Client Commendations:

Received letter of appreciation from the facility for the work performed at Site 30 dated August 1, 2008.

Project Manager, AFETA-5 Camp Peary Range 3g Design Implementation, 136194, Armed Forces Experimental Activity Camp Peary, Armed Forces Experimental Training Activity Camp Peary, Williamsburg, Virginia, \$70,698.00, 06/2009 - 05/2010

Shaw was contracted to prepare a scope of work for the implementation of the sedimentation pond design at Range 3g. Included with the design was a estimate for the construction. The task order was modified to include provide Title II Services to support the Camp Peary Engineering Department in verifying that the construction of the sedimentation pond was completed in accordance with the design.

Also included in the scope was the restoration of two locations where archeology studies were completed. This involved the backfilling of excavations and regrading of the surrounding areas.

Project Manager, AFETA-4 Camp Peary Site 53A Debris Removal, 135922, Armed Forces Experimental Activity Camp Peary, Armed Forces Experimental Training Activity Camp Peary, Williamsburg, Virginia, \$1,052,700.00, 05/2009 - 02/2010

This is the fourth task order of a three year contract with Camp Peary. The project involves the following:

(1) Mobilization to Site 53A (2) Construction of access road to the site (3) Removal of 6,900 tons of soil/debris and 3,000 tons of concrete debris. (4) Preparation of a construction completion report.

Project Manager, CTO-74, Former Vieques Naval Training Range, 123113, US Navy

NAVFACENGCOM Atlantic Division, Vieques, Puerto Rico, \$6,673,344.00, 09/2006 - 10/2009

Mr. Hughes was responsible for the management of a scope of work involving a Time Critical Removal Action (TCRA) within the Live Impact Area (LIA) and Eastern Conservation Area (ECA). This included the preparation of work plans for the removal of Munitions and Explosives of Concern (MEC) visually observed at the surface from 100 acres. The areas were divided into 30 meter square grids and all vegetation was manually cleared prior to the surface clearance of MEC. All scrap greater than 2-inches square was collected from the surface. Following the removal of MEC, Material Potentially Presenting and Explosive Hazard, Munitions Debris and other related scrap the On-Site Naval Representative was notified that the material was ready for collection by an on-site scrap processor.

**Accomplishments:**

Shaw was responsible for the management of the subcontractor responsible for the surface clearance of MEC. The processes for performing the work in the field (i.e. manual vegetation clearance, collection of scrap and removal of MEC, etc.) were monitored in the field and evaluated to determine the optimal method for conducting the work. The project team met with the Navy and Title II Contractor to review the data and discuss the progress made in. Cost data was presented to the Navy to assist them in developing a method in estimating a cost for the clean-up of the island.

Project Manager, FSSI-15 Vieques Removal Actions SWMU 6, 7 & AOC-J, 116701, Field Support Services, Inc., Vieques, Puerto Rico, \$887,111.00, 07/2005 - 09/2009

Mr. Hughes was responsible for the excavation and disposal of approximately 11,500 tons of debris and contaminated soil at three sites (SWMU-6, SWMU-7 and AOC-J) on the island of Vieques. Due to the past history of the sites, unexploded ordnance may be present so Shaw SWMU-6 is located on the edge of a mangrove on a National Wildlife Refuge.

**Accomplishments:**

Although the project was fixed price a fourth site, AOC-R, was included in the work plan that would allow the Navy to perform a removal action at a later date without having to go through a separated work plan review process.

Project Manager, AFETA-3 Camp Peary Road Removal & Sedimentation Pond Design, 133323, Camp Peary AFETA, Camp Peary AFETA, Williamsburg, VA, \$557,355.00, 09/2008 - 05/2009

Project involved three work scopes at Camp Peary. This included the removal of a haul road and restoration of the route. Also included was the design of a sedimentation pond for an explosives range. Shaw was also awarded unit pricing for the refurbishment of fire roads at the Base. Unit rates for grading, loading and transport of road base were provided by Shaw

Project Manager, AFETA-1 Camp Peary Site 41D, Site 49F and AOI-15, 131506, Armed Forces Experimental Training Activity, Camp Peary, AFETA Camp Peary, \$613,954.00, 04/2008 - 04/2009

Area of Interest (AOI) 15, named Porto Bello Boat Ramp Disposal Area, consists of glass, porcelain, and metal debris. Anecdotal information indicates this may have been a small landfill. Shaw was responsible for exploratory trenching across the site so that the Navy CLEAN contractor could collect soil samples and visually evaluate the buried debris.

Site 49F, located off Samoa Road, consists of an abandoned swimming pool that was used for debris disposal. Sample analytical results show that the soil and debris within the pool contains relatively high concentrations of PCBs. There are concentrations of PCBs outside the pool that may pose a danger to human health and the environment. The pool is approximately 30 feet by 80 feet. A concrete apron 3 feet in width surrounds the pool. The pool bottom slopes from approximately 4 feet in depths to 10 feet. Shaw was responsible for immediately mobilizing to the site to locate and remove the discharge line.

The route of the discharge line was located using a GPS. The drain from the pool was plugged. A clay cap was installed atop the pool to prevent further migration of contaminants outside of the pool. When the Navy CLEAN contractor completed a sampling and analysis plan and was prepared to collect soil samples Shaw mobilized to the site, removed the clay cap and disposed of the contents of the pool and demolished the concrete pool.

Site 41D, located off the access road to the South Lift Station, consisted of an abandoned wastewater treatment plant. In 2004, a Time Critical Removal Action (TCRA) was performed to remove the trickling filter tank. Shaw was responsible for demolishing a chlorinator building and disposing of water and sediment in an adjacent concrete tank. An imhoff tank and filter beds were also demolished. The contents of the tank and beds were disposed.

Project Manager, AFETA-3 Camp Peary, Range 3g Fire Road Refurbishment, 133367, Camp Peary AFETA, Camp Peary AFETA, Williamsburg, VA, \$79,000.00, 09/2008 - 11/2008

The project involved the refurbishment of a fire road surrounding an active range. This included the clearing of trees for the fire truck turnarounds and the placement of road base.

Project Manager, Camp Peary Remediation Services, 125489, Camp Peary Armed Forces Experimental Training Activity, Camp Peary Armed Forces Experimental Training Activity, Williamsburg, Virginia, \$2,024,727.00, 02/2007 - 11/2008

Mr. Hughes was responsible for the successful preparation of a work plan for a removal action at the Former Portobello Landfill (Site 30) which is located on the banks of Queens Creek. A one mile temporary haul road was constructed in the woods to serve as an alternate route for dump trucks to use when airfield is in operation.

Included in the scope was the attendance and participation in three Partnering Group meetings and one public meeting. This was the first public meeting that the base had held.

In addition the scope was the removal of 16 underground storage tanks at Range 37. These tanks were discovered during a UXO clearance performed by Shaw.

Modifications were submitted to the customer for the following:

- Demolition of two above ground water tanks
- Removal of approximately 10,000 tons of debris and demolition of a concrete pool filled with debris.
- Demolition of a concrete pool. During the demolition of the pool asbestos containing material (ACM) was found to be scattered around the foundation. Work was stopped so that an asbestos removal firm could remove the ACM.

Accomplishments:

A unit cost for housekeeping actions was provided to Camp Peary for the removal of surface debris from Areas of Concern (AOC) at the Base. These housekeeping actions allowed the AOCs to be properly investigated to determine if the location required additional environmental investigation.

Project Manager, CTO-78, Harvey Point Defense Testing Activity, 123365, US Navy,  
NAVFACENGCOM Atlantic Division, Harvey Point DTA, Hertford, North Carolina, \$84,100.00,  
09/2006 - 04/2008

Shaw Environmental, Inc. was responsible for providing the required training of a Harvey Point DTA employee as an operator for the Waste Water Treatment Plant that was under construction. Shaw also obtained documentation required for submittal to the North Carolina Department of Environmental Health and Natural Resources so that the WWTP could be brought into operation. This included identifying and contracting a biosolids disposal facility and notifying the regulatory agency of the responsible operator.

During the installation of a large concrete vault it was discovered that dewatering would be required within a dissolved-phase hydrocarbon plume. The dewatering of the area was to be performed by the Navy construction contractor and a portion of the water treatment equipment required was procured by Harvey Point DTA. Shaw was contacted to coordinate and operate the water treatment system while the dewatering system was in operation. Within less than a week Shaw was operating the treatment system. Approximately 95k gallons of water was treated and discharged.

Project Manager, CTO-96 Vieques Munitions Response (20 acres), 126242, US Navy  
NAVFACENGCOM Atlantic Division, Vieques, Puerto Rico, \$916,281.00, 04/2007 - 10/2007

Mr. Hughes was responsible for the management of a scope of work involving a Time Critical Removal Action (TCRA) within the Live Impact Area (LIA) and Eastern Conservation Area (ECA). This work was an extension of the work started under CTO-74 and consists of an additional 20 acres of surface clearance.

#### Accomplishments:

UXO sweep teams began the scrap/MEC clearance of a road that crossed the submunitions corridor. The submunitions corridor was a zone that was saturated with various types of unexploded submunitions that had been dropped during training exercises. Submunitions can be very sensitive and dangerous, so only the most experienced UXO technicians were allowed to work in this area due to the hazards associated with submunitions. The clearance of the road would allow other contractors to safely travel to the opposite side of the island to perform environmental investigation activities. The Navy was in the process of obtaining a burn permit to clear vegetation.

During a demolition event in the submunitions corridor a fire burned approximately 12 acres of vegetation. UXO teams were dispatched into the area burned to clear scrap/MEC. The level of effort was tracked so that the Navy could determine the cost to perform work associated with the implementation of a controlled burn to clear the vegetation.

Project Manager, Range 37 UXO Clearance, 123365, Camp Peary Armed Forces Experimental Training Activity, Range 3&, \$246,000.00, 09/2006 - 04/2007

Mr. Hughes as responsible for managing the contract by the Camp Peary Armed Forces Experimental Training Activity (AFETA) to perform range maintenance activities at Range 37 at Camp Peary AFETA, Williamsburg, Virginia. Range 37 was listed as an operational range located in the southeastern corner of the facility to which AFETA Camp Peary was planning future improvements. Prior to these improvements AFETA Camp Peary required certification that the southeast quadrant of Range 37 is clear of Munitions and Explosives of Concern (MEC) and Munitions Constituents (MC) to a depth of four feet (or maximum extent practicable) in order to minimize the risk involved with the future construction activities.

Project Manager, CTO-69 Cheatam Annex, Site 1, Hot Spot Removal and Pond Recovery, 121382, US Navy NAVFACENGCOM Atlantic Division, Williamsburg, VA, \$1,008,912.00, 06/2006 - 02/2007

Mr. Hughes was responsible for the management of the preparation of the work plan documents, execution of the field work and development of closure documents. The scope also included the excavation and disposal of approximately 3,300 tons of debris and contaminated soil from a wetland area. The contaminants of concern at the site included polyaromatic hydrocarbons, metals, pesticides and PCBs.

Shaw coordinated field activities with the U.S. Department of Interior Fish and Wildlife Service to ensure that endangered plants at the site were not damaged.

The Navy required the excavation of soil and debris to a depth of 4-feet in some portions of the marsh to meet the No Further Action goals agreed to with the Environmental Protection Agency and Virginia Department of Environmental Quality. In order to excavate the soil from the marsh, the area was isolated with clay dams to dewater the work zone and redirect inflow from up the ravine.

Following excavation the site will be backfilled, wetlands restored and riparian buffer established. Shaw coordinated with the Virginia Institute of Marine Science to ensure that the proper vegetation was used in the restoration efforts.

Project Manager, CTO-44 WPNSTA Yorktown Site 8 & SSA-14, 114749, US Navy NAVFACENGCOM, Yorktown, Virginia, \$900,505.00, 03/2005 - 02/2007

Mr. Hughes was responsible for conducting a removal action at Site 8 and SSA 14 at Naval Weapons Station Yorktown. The scope included the excavation and removal of approximately 1,000 tons of contaminated soil at each of the sites. Work plan documents were prepared and approved by the Navy, Virginia Department of Environmental Quality and Environmental Protection Agency. The soils were contaminated with metals and explosive residues.

#### Accomplishments:

During the removal of contaminated sediments from SSA-14, selenium concentrations detected in the confirmation samples were greater than the remedial goals established in the Engineering Evaluation and Cost Analysis. While the selenium concentrations were less than those encountered in the remedial investigation, it was determined that additional excavation and sampling would not achieve the remedial goals. The Navy was immediately notified so that an evaluation could be made to determine if Shaw was encountering background selenium concentrations and thus avoiding costly unnecessary excavation, sampling and disposal.

Project Manager, CTO-43 Cheatam Annex, Site 1 Removal Action, 114903, US Navy NAVFACENGCOM Atlantic Division, Williamsburg, VA, \$433,743.00, 03/2005 - 12/2006

Mr. Hughes was responsible for the management of the preparation of the work plan documents, execution of the field work and development of closure documents. The scope also included the excavation and disposal of approximately 1,800 tons of debris and contaminated soil, restoration of uplands and shoreline along the York River. The contaminants of concern at the site included metals, pesticides and PCBs. Previous contractors had been unsuccessful in restoring the beach and uplands along the shoreline that were protected by two breakwaters. The project team determined that the wrong type of sand had been used in the restoration of the shoreline and washed away by the current and tides. The Shaw E&I team located a supplier of a slightly larger grain-size sand that was more suitable for the restoration of the shoreline. As part of the restoration of the shoreline, 15,000 wetland plants were planted within the tidal zone. The uplands adjacent to the shoreline were regraded and erosion control devices were installed to allow the establishment of vegetation.

Accomplishments:

Project was completed within schedule and \$94,000 under budget. Through a series of concurrence letters Shaw E&I performed housekeeping actions at SWMU-4 (medical debris) and AOC-7 (metal debris) for the Navy.

Awards/Client Commendations:

Received letter of appreciation from the Navy for the work performed.

Project Manager, RAC4 CTO-35 Camp Garcia Septic System, 110572, NAVFACENGCOM, Camp Garcia, Vieques, Puerto Rico, \$404,593.00, 09/2004 - 12/2006

Mr. Hughes served as the project manager for the construction of a septic system at former Camp Garcia located in Vieques, Puerto Rico. In order to support the clearance of UXO on the island, the Navy wanted to re-open a portion of the facility to house field personnel. The septic system was permitted for the U.S. Fish and Wildlife Service since they were the owners of the property.

Accomplishments:

During the installation of the septic system, approximately 50 percent of the field labor was from Vieques which is an economically disadvantaged area.

Project Manager, FSSI-20, Camp Peary AFETA, Site 41b, 118088, Field Support Services, Inc., Williamsburg, VA, \$359,961.00, 09/2005 - 06/2006

Shaw E&I was responsible for the development of work plan documents and execution for a removal action and building demolition at a former water treatment facility. The removal action involved the removal of soil contaminated with silver and mercury. Filter beds, small cinder block building and Imhoff Tank were also demolished. Approximately 200-linear feet of associated piping was removed.

During the demolition of the building one compressed gas cylinder containing 100 lbs. of chlorine gas was discovered. The canister placed in an overpack and transported to a disposal facility without impacting the schedule.

Sample analytical results from the sludge in the Imhoff Tank revealed that high petroleum hydrocarbons concentrations were present. These petroleum concentrations were greater than the landfill's allowable acceptance limit of 3,000 mg/kg. The presence of silver and mercury prevented thermal treatment and disposal of this material. Samples of the sludge were tested with various additives to solidify the material and fixate the petroleum hydrocarbons. The sludge was solidified and disposed.

Accomplishments:

The additive mixture developed in the field solidified the sludge and reduced the petroleum hydrocarbon concentration so that the material could be accepted by the landfill. A additive developed also minimized the bulking of the material so that disposal costs were minimized.

Project Manager, Harvey Point DTA Scrap Yard, 116809, Harvey Point Defense Testing Area, Hertford, NC, \$619,694.00, 08/2005 - 01/2006

Project involved the removal of 2,290 tons of debris at a scrap yard. The debris consisted of vehicles, trucks, scrap metal and tanks. Project required the sorting for recycling or disposal of the material. Also disposed were one 10,000 gallon above ground storage tank and one 5,000 gallon above ground storage tank containing approximately 12,000 of tar. Following the removal of the debris a 100 foot by 300 foot concrete pad was constructed as part of a scrap recycling center.

Project Manager, FSSI-14 Camp Peary Site 60 Interim Removal Action, 115722, Field Support Services, Inc., Williamsburg, VA, \$158,190.00, 05/2005 - 12/2005

Shaw E&I was responsible for the development of work plan documents for the an interim removal action. The removal action involved the removal of soil and debris inside the two concrete pools and the lead based coating. Also removed was approximately 200-linear feet of storm drain that was suspected of containing lead contaminated sediment.

Accomplishments:

Project was completed on schedule and within budget.

Project Manger, Emergent Remedial Action Projects at Various Sites, 100717, US Navy NAVFACENGCOM Atlantic Division, Camp Peary, Williamsburg, VA, \$7,863.00, 10/2003 - 11/2005

Managed the response to emergent situations including munitions and explosives of concern (MEC), hazardous materials spills and remediation following inclement weather events. Under this task order Shaw Environmental responded to the discovery of UXO after 60 mm mortar shells were discovered by a contractor who was grading the site. A UXO technician swept the work area with a magnetometer and discovered 35 anomalies. Each of the anomalies was investigated and four were determined to be UXO items. This allowed WPNSTA Yorktown EOD Detachment clear each of the live items.

Accomplishments:

Shaw responded to the discovery of UXO and addressed the problem to reduce the delay in a construction project at the site. Mr. Hughes also assisted the customer in preparing the scope of work such that Shaw could respond to any situation where contamination is encountered during construction activities at the Camp.

Project Manager, Remedial Action, Sites 4, 21 and 22, 809275, US Navy NAVFACENGCOM Atlantic Division, Naval Weapons Station, Yorktown, VA, \$2,870,347.00, 05/2000 - 09/2005

Removal action of approximately 45,000 cubic yards of soil contaminated with metals, explosives and solvents at Sites 4, 21 and 22 at Naval Weapons Station (WPNSTA) Yorktown.

Originally, Shaw was contracted to excavate and dispose 2,100 cubic yards of soil at Sites 4, 21 and 22. After mobilizing to the site, the Navy decided to use lower remediation goals so that residential and ecological risk standards were met. This avoids the use of land-use controls and saves the Navy money in the future. The project also included the subsequent backfill and revegetation of the areas.

Accomplishments:

(1.) When a live 100 lb. general purpose was discovered during excavation activities at the site all field activities was suspended until an explosive safety submittal could be prepared, submitted to the Navy and approved. Shaw Environmental UXO would then be mobilized to the site to scan the soil and debris for any potential UXO items. During this time Shaw personnel and equipment were shift to other task orders or activities at the Station to avoid a demobilization. This saved the Navy approximately \$11,000 in mobilization-demobilization costs.

(2) Due to the large volume of waste excavated from the site, Shaw convinced the Navy to regrade the site instead of transporting 40,000 cubic yards of fill in and to restore the site to its original condition. This decision saved the Navy approximately \$100,000.

(3) When additional wastes containing lead and cadmium concentrations were found to be at levels that could be classified as hazardous, a fixation plan was prepared, approved and implemented. The fixation process saved the Navy approximately \$150,000.

Project Manger, Operation and Maintenance or the Groundwater Treatment Plant, 843835, Field Support Services, Inc., Defense Fuel Supply Point, Fuel Terminal Yorktown, VA, \$2,297,762.00, 04/2003 - 06/2005

Mr. Hughes was responsible for three years of operation and maintenance of the United States Navy owned groundwater extraction and remediation system (System) located at the Fleet and Industrial Supply Center, Defense Fuel Supply Point, Yorktown, Virginia. The system was constructed to recover Navy Special Fuel Oil (NSFO) through a series of 17 recovery trenches and 5 recovery wells.

Trenches T-1 through T-16 utilize two (2) to three (3) NSFO skimming pumps and one groundwater depression pump. Trench T-17 is currently equipped to conduct NSFO skimming only using three pumps.

The groundwater and NSFO floating on the water table are heated by a network of underground steam lines that were installed to mobilize the NSFO for collection by the recovery system. The recovered NSFO is piped directly to an 8,000 gallon capacity above ground storage tank (T-500) and subsequently transported off site for recycling by a licensed transporter.

Extracted groundwater is directed to the on site treatment system for processing prior to discharge to the York River, under General Virginia Pollution Discharge Elimination System (VPDES) permit VAG833026.

The heating of the soil is achieved using a boiler and steam distribution system. Groundwater and NSFO is extracted using pneumatic water table depression pumps and skimming pumps, respectively.

**Accomplishments:**

During this period of operation upgrades and modifications were made to the system to optimize the system.

**Other Comments:**

The client awarded subsequent task orders (TO-7, Project No. 101733; TO-13, Project No. 114274) each for an additional one year of O&M. On June 1, 2005, the project was turned over to Mark Pisarcik.

Project Manager, Phase IIb Expansion Implementation, Naval Special Fuel Oil Remediation, FSIC Yorktown, VA, 103482, Field Support Services, Naval Supply Center, Yorktown, VA, \$471,008.00, 04/2004 - 08/2004

Was responsible for the management of the installation of seven product recovery trenches using a one-pass trencher. The scope of work also included upgrades to the groundwater treatment plant including the expansion of the control room, motor and steam boiler upgrades and pipe maintenance.

**Accomplishments:**

Accuracy was important in the installation of the trenches because some of were installed between abandoned concrete USTs. If the chain of the one-pass trencher were to strike side of UST it would break resulting in a cost standby for the subcontractor of \$1,000 per hour.

All work was completed on schedule and under budget.

Project Manager, Excavation and Bioremediation of Explosive Contaminated Soil, Site 6, 920683, US Navy NAVFACENGCOM Atlantic Division, Naval Weapons Station, Yorktown, VA, \$2,464,619.00, 08/2001 - 06/2004

Mr. Hughes is responsible for the management of the excavation of soil contaminated with explosives and transport to a treatment cell located on the Weapons Station.



The contaminated soil is excavated from a wetlands area in 1,000 cubic yard batches for transport to the biocell for treatment. One of the challenges of the execution of the project is the transport of the wet contaminated soil from Site 6 to the treatment cell without any spillage or leakage. Dump trucks equipped with a rubber seal were used to transport the soil with no leakage on to the road. Five consecutive batches have been prepared to date.

Following loading, the soil is treated using an advanced biological treatment technology for soil contaminated with recalcitrant organic compounds such as organic explosives and volatile organic compounds (VOCs). Shaw has implemented the DARAMEND technology to treat the soil. DARAMEND amendments and powdered iron are applied by distributing the amendments, relatively evenly, over the surface of the treatment area and tilled to homogenize it with the soil. The treatment progress is monitored through the collection and analysis of soil samples to determine the contaminant concentrations.

**Accomplishments:**

One of the greatest challenges during the project was to transport saturated soil from the site to the biocell for treatment. Shaw modified dump trucks so that the material could be transported without any spillage. During the loading of the third batch of soil, representatives from the Navy and Virginia Department of Environmental Quality (DEQ) witnessed the loading of the soil into a dump truck at Site 6 and followed the truck as it transported the soil to the treatment cell. The representative was pleased that no material had escaped from the truck during the trip to the treatment cell.

Project Manager, Phase 2a Construction, System Expansion, 845694, Field Support Services, Inc., Naval Supply Center, Yorktown, VA, \$430,800.00, 06/2003 - 04/2004

Mr. Hughes was responsible for the project management of this fixed-price construction project involving the installation of three product recovery trenches and their connection to the existing groundwater treatment plant. The trenches were installed using a one-pass trencher that was capable of reaching the 30-foot installation requirements. Recovery wells were installed within the trenches for free-product recovery.

**Accomplishments:**

Project was completed with no accidents or first aid cases.

Project Manager, Phase II System Work Plan and System Upgrades, 843845, Field Support Services, Inc., Naval Supply Center, Yorktown, VA, \$309,845.00, 04/2003 - 04/2004

Mr. Hughes was responsible for Task Order No. 4 of contract No. N62470-03-D-4402 (ANC-RAC). Shaw is subcontracted to Field Support Services, Inc. (FSSI), an Alaskan Native Corporation. The original contract value was \$309.8k for the following scope of work:

Design of the Phase II expansion of the thermally enhanced NSFO recovery system at the NSFO site at the Yorktown Fuel Farm, Yorktown, Virginia. The design of the plant upgrades was also included in the scope.

Upgrades of the groundwater treatment plant which included the installation of a 20,000-gallon capacity above ground storage tank and a load out pad to meet the current SPCC requirements.

Monitoring and sampling at the MOGAS Loop site at the Yorktown Fuel Farm. Abandonment of monitoring wells, quarterly liquid-vapor vacuum events and reporting were also included in the scope.

Originally the cost estimate was the design and construction of the Phase II expansion. The conceptual

design and cost estimate were prepared by Shaw in 13 days. When the Navy determined that their budget constraints would not allow the funding of the entire project, only the design and plant upgrades were included in the task order.

Project Manager, Tank 272 Remediation O&M, 843334, US Navy NAVFACENGCOM Atlantic Division, FISC Craney Island, Portsmouth, VA, \$80,451.00, 03/2003 - 01/2004

Under this task order Shaw is responsible for the operation and maintenance (O&M) of a remediation system at the former Tank 272 site, Fleet Industrial Supply Center (FISC), Portsmouth, Virginia.

The free product recovery system consists of a gravel-filled recovery trench (approximately 200-feet long), running east-west to the north of the former Tank 272 where the greatest amount of free product has been measured. Free product that is collected in the trench is extracted via a series of four recovery wells (RTW-1 through RTW-4). Each of the four wells is equipped with a groundwater depression drop tube (total fluids) and a product-collecting drop tube. Five recovery wells (RW-A through RW-E) are located in southeast portion of the free product plume to recover migrating free product before it reaches Craney Creek. The recovery wells are equipped with a single total fluids drop tube.

Free product has been migrating into an underground stormwater pipe that runs along the southeast boundary of the site. A total fluids recovery tube is located at a weir that was constructed to intercept free product that has entered pipe before the pipe discharges into a surface drainage channel which leads to a permitted oil/water separator

#### Accomplishments:

Mr. Hughes was responsible for the coordination of all site activities. Prior to Shaw taking responsibility of the system, it had been operating for less than 50%. With some minor changes to the system operation Shaw has increased the system up-time to greater than 90%.

Project Manager, Piers Area O&M, 796892, US Navy NAVFACENGCOM Atlantic Division, Norfolk Naval Base, Norfolk, VA, \$435,364.00, 02/2000 - 06/2003

Mr. Hughes was responsible for the operation and maintenance (O&M) of four groundwater remediation systems (Areas A through D) along the piers area of Norfolk Naval Base. Each of the systems consists of four to 11 recovery wells with pneumatic product skimming pumps, an air compressor and product storage tank. Among other O&M activities associated with existing product recovery systems at the Naval Base, this task order included the installation of two recovery wells, 5 observation wells, and the performance of an aquifer pumping test and data analysis for system optimization at Area D.

The groundwater remedial actions through product recovery are based upon the presence of liquid-phase petroleum hydrocarbon plumes located between the W Fuel Farm and Pier 7. The plume at Area D is thought to seep into the Elizabeth River. The purpose of these remedial activities is to mitigate the seeps entering the Elizabeth River between Pier 10 and Pier C and maximize recovery of liquid-phase petroleum hydrocarbons.

Area A is located within the containment area for the W Fuel Farm. The system recovered approximately 5 gallons of product per month due to the viscous nature of the product and the slow recharge rate. On June 6 and 7, 2001, the product recovery wells and monitoring wells within the containment area for the aboveground storage tanks were abandoned and the system was decommissioned. The decision to decommission the system and abandon the wells was based on the diminishing returns of product recovery, cost of modifying the system to maintain the integrity of a contaminant liner that was in the process of being installed, and the potential reduction in the protection factor of the liner. This area is being review to determine the best method to address the contamination still present below the liner.

A subsurface investigation was conducted in the vicinity of the Areas B and D to delineate the product plume. The results of the investigation indicated that the plume was much larger in extent and the appearance of the product found suggested that an active leak was present.

At Area C a review of information including product distribution maps, fuel distribution pipeline drawings, product recovery data and Navy environmental studies to determine the source of the product. Based upon the results of the review and the appearance of the recovered product, It was recommended that the Navy investigate the integrity of the fuel distribution lines in the vicinity of Area C.

Approximately 4,170 gallons of product has been recovered between June 5, 2000 and February 28, 2002. A majority of the product recovered (3,899 gallons) has been recovered by the system at Area C.

**Accomplishments:**

During O&M visits we optimized the system operation in Area C to maximize the recovery of product. The efforts resulted in a 20% increase in the weekly contaminant removal rate.

Project Manager, Groundwater Treatment Plant Operation, 920863, US Navy NAVFACENGCOM Atlantic Division, Defense Fuel Supply Point, Fuel Terminal Yorktown, VA, \$9,470,674.00, 08/2002 - 03/2003

Mr. Hughes was responsible for the operation and maintenance of a groundwater extraction system that consists of 17 recovery trenches and 6 recovery wells used for the capture of a free product plume consisting of naval special fuel oil (NSFO). The NSFO is very viscous so it is heated using a network of horizontal steam lines for circulating steam.

**Accomplishments:**

On November 1, 2002, the site achieved 1,000 consecutive days without a lost time accident.

**Awards/Client Commendations:**

Received letter of appreciation from the Navy.

Project Manager, Removal Action, Site 24, 837422, US Navy NAVFACENGCOM Atlantic Division, Naval Weapons Station, Yorktown, VA, \$16,642.00, 05/2002 - 12/2002

This Delivery Order was issued to remediate Site 24. The overall goal of the Site 24 Remedial Action is to mitigate direct contact by human and ecological receptors with contaminated soil through removal and disposal of said soil. Therefore, the objective of this project is to remove and dispose of approximately 9400 cubic yards of metal debris and polychlorinated biphenyl (PCB) and inorganic contaminated soil from Site 24 at the Naval Weapons Station (WPNSTA) Yorktown, Yorktown, Virginia. Metal debris (e.g., inert ordnance parts) was unearthed during 1994 trenching activities; therefore, it is anticipated that there will be a large amount of metal waste. In addition, of the 9400 cubic yards of debris and contaminated soil anticipated to be removed from Site 24, approximately 30 cubic yards will have to be disposed of as hazardous waste because of PCB contamination greater than 50 parts per million in the subsurface soil. Mr. Hughes was responsible for the preparation of work plan documents for performing the work.

**Other Comments:**

Due to higher than anticipated cost for the execution of this project the Navy delayed the work and closed the delivery order.

**06/2000 - 07/2001**

***Project Scientist, Shaw Environmental & Infrastructure, Inc., Virginia Beach, Virginia***

Served as project scientist to a variety of sites at Marine Corps Air Station (MCAS) Cherry Point, North Carolina. Responsibilities included the coordination of field activities with field personnel, analytical laboratories and subcontractors, reviewed analytical and field data, and prepared workplans and quarterly reports. Work was performed at a several sites utilizing pump and treat, air sparge and soil vapor extraction technology.

***The following is a summary of key projects:***

Project Scientist, Operation and Maintenance of Four Remedial Systems, MCAS Cherry Point., 777756, Naval Facilities Engineering Command (NAVFAC), Atlantic Division, Cherry Point, North Carolina, \$2,216,385.00, 06/2000 - 01/2003

The Scope of Work for Delivery Order #29 includes operation and maintenance of four remedial systems at MCAS Cherry Point, North Carolina. Specifically, the groundwater extraction well system at Operable Unit 1 (OU1) NADEP Hot Spot Area (IWTP System); OU2 Site 16 Air Sparge/Soil Vapor Extraction System; OU2 Site 10 Soil Vapor Extraction System on Four Hot Spots and OU3 Site 7 Low Flow Air Sparge System. Mr. Hughes was responsible for the coordination of monthly, quarterly and annual sampling of the sites. Using field data and analytical results he calculated the mass of contaminants removed from the subsurface. He prepared monitoring status reports for submittal to the Navy, EPA and North Carolina DEHNR.

**Accomplishments:**

Coordinated the implementation of Poly Diffusive Bag sampling procedures the monitoring of dissolved VOCs at Site 16. This change in the field sampling resulted in a savings in cost of labor and material for ongoing monitoring.

Project Scientist, Underground Storage Tanks, Remedial Action at Auxiliary Landing, Bogue Field, DO #56, , Naval Facilities Engineering Command (NAVFAC), Atlantic Division, Bogue, North Carolina, \$503,277.00, 10/2001 - 04/2002

The Task Order originally included the characterization, and land farming of approximately 8,022 tons of petroleum contaminated soil at Tactical Aviation Fuel Distribution System (TAFDS) site Marine Corps Auxiliary Landing Field (MCALF) Bogue, North Carolina. Mr. Hughes was responsible for the preparation of the work plan that was originally intended to be for a landfarm. However, due to the potential threat of a bird strike with military aircraft the project changed to excavation and disposal of 8022 tons of petroleum contaminated soils. He worked with the field staff to supervise the collection of confirmation soil samples to verify that all of the contaminated soil had been removed. Following the completion of field activities, he prepared the project closure report.

Project Scientist, Operation and Maintenance of UST Remediation Systems at Marine Corps Air Station Cherry Point, DO #31, 777960, Naval Facilities Engineering Command (NAVFAC), Atlantic Division (LANTDIV), Cherry Point, North Carolina, \$1,700,969.00, 01/2000 - 08/2001

Mr. Hughes was responsible for providing technical support to the continuing operation and maintenance (O&M) at underground storage tank (UST) remediation systems at Marine Corps Air Station Cherry Point. The remediation systems included soil vapor extraction systems (SVE), air sparge/soil vapor extraction (AS/SVE) and monitored natural attenuation. He coordinated air and groundwater sampling events, prepared quarterly monitoring reports and reviewed data to optimize system operation.

Project Scientist, Removal of Abrasive Blast Material, Task Order #55, 806397, Naval Facilities Engineering Command (NAVFAC), Atlantic Division, Virginia Beach, Virginia, \$288,272.00, 03/2000 - 03/2001

OHM Remediation Services, Inc. (a member of The IT Group) (OHM/IT) characterized, excavated, and disposed of approximately 4,581 tons of soil containing ABM at SWMU 8. Mr. Hughes was responsible for the preparation of work plan documents and coordination of all sampling. Prior to excavating the ABM, six soil samples were collected and submitted to a laboratory for characterization analysis. TCLP results for the soil samples collected indicated that all of the material was non-hazardous and could be disposed at a Subtitle D landfill. All material was transported under non-hazardous shipping manifests. Following the completion of field work he was responsible for the preparation of closure documents.

**05/1994 - 06/2000**

***Project Manager/Project Geologist, IT Corporation (The Shaw Group Inc., acquired substantially all of the operating assets of The IT Group Inc., in May 2002), Renton, Washington***

Served as the project manager or project geologist for a variety of projects including US Navy, retail petroleum and industrial customers.

***The following is a summary of key projects:***

Project Scientist, Reichhold Chemical-Lonestar, Reichhold Chemical-Lonestar, Seattle, Washington, 09/1999 - 06/2000

Project Geologist for former wood preservation manufacturing site at Seattle, Washington. Groundwater at the site is contaminated with pentachlorophenol (PCP) and arsenic. Ex-situ treatment determined to be impracticable due to current site activities and hydrogeologic conditions. Supervised the air sparge and soil vapor extraction pilot tests for the in-situ oxidation of PCP. Supervised the push-pull tests to determine the feasibility of immobilizing arsenic in the groundwater.

Project Geologist, Cascade Wood Treatment Site, Port of Olympia, Olympia, Washington, 09/1998 - 05/2000

Project Geologist for a supplemental investigation at a wood treating facility at the Port of Olympia, Washington. Supervised the installation of groundwater monitoring wells in the shallow and deep aquifers using air-rotary and hollow-stem auger drilling equipment. The monitoring well installation was part of a focused feasibility study for the application use of steam injection at the site. Also supervised the installation of soil borings in support of the placement of recovery wells.

Regional Project Manager, Pennzoil-Jiffy Lube-Quaker State Program, Various, Pennzoil-Jiffy Lube-Quaker State, California, Oregon, Washington, Texas and Colorado, 10/1998 - 04/2000

Responsible for multiple retail petroleum sites in California, Oregon, Washington, Texas and Colorado. This included managing and providing technical support environmental projects throughout Washington, Oregon, California, Texas, and Colorado under a partnership agreement with a major petroleum marketer. Under the agreement managed 10 to 20 retail petroleum projects and an annual budget exceeding \$400,000. The scope of work for the projects ranged removal of underground storage tanks, excavation of contaminated soil to environmental assessments.

Project Scientist, Port of Longview, , Sverdrup Civil, Inc., Longview, Washington, \$36,195.00, 02/1999 - 08/1999

Project Geologist for a hazardous waste discipline study at Public Port of Longview, Washington. Prepared hazardous waste discipline report for design of an alternate rail corridor to the Port. Study involved the identification of contaminated properties along the route that may impact construction

activities or pose a potential liability to the Port. Report was prepared in compliance with Washington Department of Transportation and Federal Highway Administration requirements.

Site Manager, Cascade Corporation, Cascade Corporation, Troutdale, Oregon, 04/1997 - 04/1998  
Site Manager for chlorinated solvent contamination at a manufacturing facility at Troutdale, Oregon. Managed the five well expansion of a groundwater pump and treat system. Site is impacted by releases of primarily TCE, to the subsurface, which resulted in a plume approximately 2 square miles in extent. Significant impacts to shallow soil below the production facilities, as well as the shallow aquifer and a deeper aquifer down gradient of the facility. The deeper aquifer is a potential potable water source. Directed design of the expansion of the off-site treatment system which includes 11 groundwater extraction wells and a 1,000 gpm air stripper. Coordinated O&M of the system and prepared (O&M) manual.

Site Manager, Steam Sparge Project, Foster Wheeler Environmental Corporation, Bremerton, Washington, \$2,700,000.00, 05/1995 - 06/1997  
This project was awarded to Foster Wheeler Environmental Corporation as part of their Navy NWDIV RAC Contract. Mr. Hughes was the Site Manager for a steam sparging demonstration at Puget Sound Naval Shipyard, Bremerton, Washington under Task Order No. 40. Managed design, installation, and operation of a steam injection project for treating NSFO and diesel fuel. Responsible for data collection during start-up and operation of the system to ensure that the project objectives were being met. Developed work plan as an interim measure for the soil remediation and free product recovery under Task Order No. 20.

**Accomplishments:**

With groundwater at 100 feet below grade and released petroleum estimated at 300,000 gallons, this steam injection project is the most ambitious US steam injection projects. Work plan, drawings, and specifications were reviewed and accepted by the US Navy, Washington Department of Ecology, and USEPA.

Project Geologist, Steam Injection/Electro Heating Study, Rice University, Fort Hood, Killeen, Texas, 10/1995 - 12/1995

Project Geologist for a steam injection, electro-heating and hydraulic fracturing at Fort Hood, Texas. Prepared QA/QC Plan and Health and Safety Plan for an innovative technology commercialization project to remediate jet fuel-impacted clay soils using steam injection, electro-heating, and hydraulic fracturing.

**Accomplishments:**

The DOD-funded research work successfully increased formation permeability by fracturing and thermally enhanced JP-8 recovery at Robert Grey Airfield, Ft. Hood, Texas.

**11/1992 - 05/1994**

***Staff Geologist, Groundwater Technology, Inc., Chesapeake, Virginia***

Provided technical support for a variety of projects at Naval facilities

***The following is a summary of key projects:***

Staff Geologist, Thermally Enhanced Pilot Test, US Navy - Atlantic Division, Yorktown, Virginia, 06/1994 - 12/1994

Served as staff geologist for a steam/hot water injection pilot test at Navy Supply Center, Yorktown, Virginia. Supervised the installation of post-treatment soil borings, analyzed soil and groundwater

laboratory results and collected field data. Assisted in development of the pilot test evaluation report, which included recommendations for full-scale remediation system design.

Staff Geologist, Armed Forces Staff College, US Navy - Atlantic Division, Norfolk, VA, 05/1993 - 06/1994

Served as staff geologist for a product recovery system at the Armed Forces Staff College, Norfolk Naval Base, Virginia. Supervised the installation of monitoring wells for the delineation of diesel plume and provided technical support for the installation of an eight-well product recovery system. Managed system start-up and operations and maintenance program.

Staff Geologist, UST Site Check Program, Various, US Navy - Atlantic Division, Various in Virginia, West Virginia and North Carolina, \$500,000.00, 11/1992 - 05/1994

Was the staff geologist for limited environmental assessments at Naval facilities at UST Sites in Virginia, West Virginia, and North Carolina.

Developed work plans for limited environmental site assessments at 51 UST sites. Supervised installation of monitoring wells and soil boreholes, collection of soil and groundwater samples, coordinated waste management and prepared final reports.

**Accomplishments:**

One of the delivery orders necessitated that a site check be conducted within two weeks of receipt of the delivery order to evaluate a facility at Norfolk Naval Shipyard. The expedited response was critical due to site renovations in progress when a hydrocarbon release was discovered. It was necessary to confirm or deny this finding to avoid construction delays. The report of findings was delivered within the requested time frame.

**06/1991 - 11/1992**

***Staff Geologist, Groundwater Technology, Inc., Houston, Texas***

Staff geologist for the assessment, remediation, and emergency response at multiple sites in southeast Texas. Responsible for supervising installation of monitoring wells and soil boreholes, preparing bid documents and technical specifications for remediation system construction. Coordinated immediate/emergency response activities, supervised UST excavation and removals. Developed work plans, health and safety plans, and assessment reports, coordinated waste management and disposal in compliance with corporate guidelines.

One site involved the excavation and removal of USTs at a former paint manufacturing facility in Houston, Texas. Responsible for conducting site reconnaissance and collecting background information about the site. This involved soliciting involvement from several local and state agencies, property owner, and local residents to obtain access/egress agreements and permits. He supervised the excavation and removal of seven USTs located beneath city street, which had contained gasoline, diesel, and mineral spirits. Approximately 8,000 gallons of semi-solid paint wastes was discovered during excavating activities. The classification of excavated soil, paint waste, and decontamination water as nonhazardous industrial waste using analytical data and background information saved the customer more than \$1 million.

**06/1990 - 06/1991**

***Field Geologist, Groundwater Technology, Inc., Concord, California***

Involved in site assessment and remediation at sites in Northern California. Responsible for variety of soil and groundwater assessment and remediation projects involving pump-and-treat, SVE, and vapor

abatement technologies. Ensured projects met all local, state, and federal standards.

**10/1987 - 06/1990**

***Assistant Geologist, Applied Earth Technology, Inc., Redwood City, California***

Assisted in the development of lithologic studies of strata in the Sacramento, San Joaquin Basins. The work included the preparation of cross sections and various maps. Also coordinated the study of property located in southwest Syria. This project entailed the integration of geologic data from Lebanon, Israel, Iraq and Southwest Turkey.

### **Professional Affiliations**

Project Management Institute, 2006

### **Awards/Honors**

President's Award - AFETA Camp Peary (1,000 days without an accident), Shaw E&I, 2010

President's Award - Naval Weapons Station Yorktown (1,000 days without an accident), Shaw E&I, 2006

President's Award - Yorktown NSFO Fuel Farm Project (2,000 days without an accident), Shaw E&I, 2005

### **Publications/Presentations**

David Hill, Alan Seech, and Mike Mueller (The Adventus Group), Linda Cole (Naval Facilities Engineering Command, and William Hughes (The SHAW Group), In-Situ Pre-Treatment of Organic Explosives in Soil at the US Yorktown Naval Weapons Station, 10th ConSoil Conference, Milano, Italy, 2008

Douglas Jerger (The Shaw Group Inc.), William Hughes, Alan Seech (Adventus Americas), James Mueller, and Linda Cole (NAVFAC Atlantic), Full-Scale In-Place Reductive Remediation of Sediment Containing Organic Explosives At the Yorktown Naval Weapons Station, The Fifth International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, CA, 2006

Jennifer Davis (Naval Facilities Engineering Command, Norfolk, VA), William Hughes and P. Taylor Sword (Shaw Environmental, Inc., Virginia Beach, VA), Developing an Exit Strategy For Remediation, Yorktown Fuel Farm, Virginia, Joint Services Environmental Management Conference and Symposium, Tampa, Florida, 2005

William Hughes (Shaw Environmental, Inc., Virginia Beach, VA), Raymond, David, Geoff Bell, and Alan Seech (Adventus Remediation Technologies, Mississauga, ON), and Jeff Harlow (Naval Facilities Engineering Command, Norfolk, VA), In-Place Bioremediation For Pre-Treatment of Soil Containing Organic Explosive Compounds at the Yorktown Naval Weapons Station, Virginia, UXO Countermining Forum, St. Louis, MO, 2004

Davis, Jennifer, Hughes, Bill and Conway, John, Steam Enhanced Recovery of Navy Special Fuel Oil, Yorktown Fuel Farm, Yorktown, Virginia, DON Navy/Marine Corps Cleanup Conference, Oxnard, CA, 2003

Jeff Harlow (Naval Facilities Engineering Command, Norfolk, VA) and William Hughes (Shaw Environmental, Inc., Virginia Beach, VA), Bioremediation of Explosives, Naval Weapons Station, Yorktown, Virginia, Department of Navy, Navy/Marine Corps Cleanup Conference, Oxnard, CA, 2003



**ATTACHMENT 4**

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***GUIDELINES FOR STANDARD SAFETY DISCIPLINARY ACTIONS***



**Shaw Environmental and Infrastructure, Inc.  
Guidelines for Standard Safety Disciplinary Actions**

**SEI-GUIDE-004**

This document is for the purpose of providing information about the types of conduct, including but not limited to those that constitute just cause for disciplinary actions that may be taken by Shaw.

This guideline is applicable for all projects under the management of Shaw Environmental & Infrastructure, Inc.

Approved By

George Bevan, President

Bill Winkler – President, Federal Business Line

Jeff Jenkins – President, CS&L Business Line

Scott Waguespack, Executive Director of Human Resources

Troy Allen, Executive Director of Health & Safety

September 24, 2009

Effective Date

## **Guidelines for Standard Safety Disciplinary Actions**

### **1.0 PURPOSE**

This guideline has been developed to provide a more consistent approach to disciplinary action when safety violations occur within Shaw E&I. The disciplinary actions imposed may include verbal and written warnings, suspension, or termination as defined in HR207 “Employee Discipline”.

This document is for the purpose of providing information about the types of conduct, including but not limited to those that constitute just cause for disciplinary actions and possible disciplinary actions that may be taken by Shaw. This guideline does not require Shaw to impose any particular discipline or progressive discipline, and does not limit Shaw’s rights to discipline, suspend, or discharge any employee within Shaw’s discretion. Employee’s that are part of an active Collective Bargaining Agreement (CBA) will be subject to the disciplinary action guidelines as specified in the CBA under which they are covered.

The employee’s direct supervisor and/or functional manager are responsible for ensuring that violations of health and safety policies, procedures, and regulations are dealt with in an appropriate and consistent manner. The following guidance should be utilized to determine disciplinary actions for safety violations.

### **2.0 TYPES OF VIOLATIONS**

Safety violations are typically categorized as minor, moderate, or serious. Additionally, concerning second or repeat violations, it should be understood that a violation should not be compounded or considered repeat / second violation if the previous violation occurred more than 3 years prior. The following provides the disciplinary procedures to be used for the specific class of violation.

2.1 For a **Minor** safety violation, (see examples below), the employee’s direct site supervisor or functional manager will meet with the employee(s) and discuss the nature of the safety violation. The recommended corrective action should be selected to prevent future violations.

2.1.1 Should a second, Minor safety violation occur to the same employee, the direct site supervisor and functional manager will meet with the employee and issue a written warning to the employee. The direct supervisor must use the Disciplinary Action Form (Attachment 1). A copy of the Disciplinary Action Form must be submitted to the employee’s designated Human Resources representative for review prior to issuing the written warning. A further minor violation either being of the same safety issue by the same employee or a different offense may result in another written warning, suspension from work without pay (non-exempt) for a reasonable period of time, or the direct supervisor may recommend a Discharge Termination. These further violations provide

for indicators of continued unacceptable behavior and should be accounted for when determining a disciplinary action. The designated Human Resources representative must be consulted prior to suspension or termination.

NOTE: Under the Fair Labor Standards Act (FLSA), an exempt employee can only be suspended for disciplinary reasons with a reduction in salary, for a violation of a serious safety rule. Exempt employees can be reassigned or instructed not to report to work pending the supervisor's decision whether to recommend termination. However, they must continue to be paid their regular salary.

2.2 A **Moderate** (see examples in section 3.0) safety violation will require the direct supervisor and functional manager to document a verbal or prepare a written warning (using the Disciplinary Action Form) for the safety violation. A copy of the Disciplinary Action Form must be submitted to the Human Resources representative for review prior to issuing the written warning.

In event of a repeat Moderate safety violation by the same employee(s), another written warning may be issued to the employee(s) and the designated Human Resources representative should be contacted to determine if suspension or termination is warranted.

2.3 If a **Serious** safety violation occurs, it will require that, in most cases, the direct supervisor or person observing the violation had to immediately intervene and/or stop the activity. The employee's direct supervisor and functional manager will complete the Disciplinary Action Form for the safety violation that was observed. The designated Human Resources representative shall then be contacted to determine the next course of action, such as suspension or termination (as warranted).

2.3 If a **Terminable** safety violation occurs, it will require that, in most cases, the direct supervisor or person observing the violation had to immediately intervene and/or stop the activity. The employee's direct supervisor and functional manager will complete the Disciplinary Action Form for the safety violation that was observed. The designated Human Resources representative shall then be contacted to determine the appropriate course of action in accordance with requirements set forth in the Human Resources termination process.

Type of Violation	Recommended Action
Minor	Verbal warning (but always documented in field notes)
Moderate	Documented verbal or written warning
Serious	Written disciplinary action; suspension or termination
Terminable	Termination

### **3.0 EXAMPLES OF SAFETY VIOLATIONS**

The following provides typical examples for each class of safety violation. The employee's direct supervisor is responsible for recommending the classification of the violation to the Human Resources representative. The Human Resources representative shall make the final classification of the violation, after consultation with a Health and Safety Manager.

#### **3.1 Minor Safety Violation**

- Failure to wear specified personal protective equipment, e.g., safety glasses, gloves, safety shoes/boots, etc.
- Failure to perform daily heavy equipment or vehicle inspections
- Performing unsafe work practices
- Horseplay, which doesn't result in an accident or injury
- Failure to attend a scheduled safety meeting
- Improperly dismounting heavy equipment

#### **3.2 Moderate Safety Violation**

- Repeat of Minor safety violation
- Failure to report a minor first aid injury within a day of the incident, e.g., small cut on finger requiring a band-aid, bee sting, dust particle in eye
- Failure to immediately report an accident or injury, including any equipment or property damage
- Failure to wear specialized PPE, e.g. face shield, respiratory protection, etc.
- Performing unsafe work practices after being corrected
- Horseplay, which didn't but could have resulted in an accident or injury
- Abuse of safety equipment
- Violation of company 60-pound lifting limit or lifting limit of less than 60 pounds designated by a medical professional
- Failure to follow restricted activity guidelines directed by a medical professional
- Neglect in care of company or client vehicles (example GSA)

#### **3.3 Serious Safety Violation**

- Repeat of Moderate violation
- Knowingly performing unsafe work practices, which could have or did result in serious injury to the employee or other personnel
- Possession/use of drugs (without a prescription) or alcohol on company projects/premises
- Positive drug or alcohol test
- Unauthorized use of company or client vehicles
- Citation for reckless driving or open alcohol container while on company business
- Leaving the scene of an automobile accident without contacting the police, regardless of fault
- Not immediately reporting a work related auto accident, regardless of fault
- Not immediately reporting a work related driving under the influence citation
- Not immediately reporting a work related open alcohol container citation

- Not immediately reporting a work related hit and run citation
- Horseplay that results in employee injury
- Destroying or damaging company, client or another employee's property
- Tampering with safety equipment
- Direct refusal to wear the designated PPE for a task
- Direct refusal to follow established company Health and Safety Policy

### 3.4 **Terminable** Safety Violation

- Failure to wear fall protection or not being tied to an anchor point when required
- Disregard for a required lockout / tag out
- Upon conviction or upon pleading no contest to a DUI/DWI while driving on company business

### 4.0 REFERENCES

HR207 "Employee Discipline"

## ATTACHMENT 1 - DISCIPLINARY ACTION FORM

\_\_\_\_\_  
Employee Name

\_\_\_\_\_  
Employee Number

\_\_\_\_\_  
Position

\_\_\_\_\_  
Date of Hire

\_\_\_\_\_  
Resource Manager

\_\_\_\_\_  
Supervisor Imposing Discipline

### I – PERFORMANCE PROBLEM OR MISCONDUCT

The supervisor should complete the applicable provisions of this section.

Most recent date and time of Performance Problem or Misconduct: \_\_\_\_\_

Location of Incident or Problem: \_\_\_\_\_

Describe Problem or Misconduct: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Describe Explanation Offered by the Employee: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### II – PRIOR RECORD OF COUNSELING

Has employee received any prior warning?

☐ Yes

☐ No

If yes, was the prior warning for the same or a similar problem/offense? ☐ Yes

☐ No

Briefly explain: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_



If the prior warning was for a different problem or type of misconduct, explain: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Was the prior warning verbal or written? ☐ Verbal ☐ Written ☐ Both

Date(s) or prior counseling and by whom: \_\_\_\_\_

### III – PRIOR DISCIPLINARY ACTION TAKEN

- ☐ Verbal Warning ☐ Written Suspension ☐ Demotion  
☐ Written Warning ☐ Transfer ☐ Suspension  
☐ Extension of Probation  
☐ Loss of Privileges (Explain): \_\_\_\_\_  
☐ Termination ☐ Other \_\_\_\_\_

### IV – CURRENT DISCIPLINARY ACTION TAKEN

- ☐ Verbal Warning ☐ Written Suspension ☐ Demotion  
☐ Written Warning ☐ Transfer ☐ Suspension  
☐ Extension of Probation  
☐ Loss of Privileges (Explain): \_\_\_\_\_  
☐ Termination ☐ Other \_\_\_\_\_

### V – REQUIRED CORRECTIVE ACTION PLAN

The employee must address and correct the problem:

☐ Immediately ☐ Within \_\_\_\_\_ Days

Corrective steps to be taken by employee: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

<b>ACKNOWLEDGMENTS</b>
------------------------

Prepared by (Print & Sign):  _____	Position / Job Location:	Date:
--	--------------------------	-------

**Human Resources Department Review**

Reviewed by (Print & Sign):  _____	Position / Office Location:	Date:
--	-----------------------------	-------

I certify that I have read this disciplinary action form and fully understand it.

\_\_\_\_\_  
Employee Signature

\_\_\_\_\_  
Date

**A copy of this form shall be placed in the employee file.**

Note: Additional page(s) can be added, as required, making reference to relevant Section(s) where additional space is required to accurately and completely clarify any Section.

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# **ATTACHMENT 5**

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## ***INCIDENT NOTIFICATION, REPORTING, AND MANAGEMENT PROCEDURE***

## **Incident Notification, Reporting, and Management Procedure – Naval Support Facility Indian Head, Indian Head, Maryland**

### Directions, Notes, and Reminders

- Follow this procedure step-by-step for all incidents.
- This procedure has limited application to subcontractors. Assist subcontractors with medical emergencies (as applicable) and then immediately notify the Program H&S Manager for guidance.
- Periodically review this procedure in order to be familiar with the steps - prior to an incident occurring.
- For injuries and vehicle accidents, secure the scene to prevent additional injury/incident, administer on-site first aid, and arrange for emergency assistance prior to making any other notifications. Do not disturb serious accident scenes and then obtain photographs prior to completing investigation.
- The Field Team Leader or SSHO is responsible for making notifications to:
  - Base emergency: 301-744-4333
  - CORE Health Networks (while employee is en route to medical care facility): 877-EHS-Shaw (or 877-347-7429)
  - To the Program H&S Manager or Alternate H&S Manager by telephone prior to making any other notifications (other than calling x4333 as necessary and CORE).
  - Project Manager (Steve Carriere, 609-234-6361)
  - Help Desk / Hot Line: 866-299-3445
  - Marcia Musgrave: 419-425-6160.
- The Project Manager is responsible for making notifications to the Program Manager by telephone no later than two hours after the incident for all incidents requiring Help Desk notification and all first aid cases with potential for aggravation.
- The Field Team Leader or his delegate (SSHO or Alternate SSHO) shall accompany all injured personnel to the Core clinic or to the hospital emergency room.
- All incident reports shall be completed by typing (when feasible and applicable).
- All incident reports shall be submitted (email or fax) to the Program H&S Manager or Alternate H&S Manager for review and distribution.
- Complete all the blanks on the INCIDENT NOTIFICATION AND COMMUNICATION CONTACT LIST (page 6) and post near all site telephones.

## Incident Notification, Reporting, and Management Procedure – Naval Support Facility, Indian Head Maryland

<i>Action</i>	<i>Who / When</i>	<i>Under what circumstances</i>	<i>How</i>	<i>Notes</i>
1. Notify Field Team Leader or SSHO for all incidents (no matter how minor)	Injured person, first person recognizing incident, driver/passenger, or employee causing damage <i>Immediately</i>	<b>All incidents no matter how minor (including minor cuts, scratches, minor strains/sprains, and insect bites)</b>	In person or by telephone	Field Team Leader to make note of very minor incidents (such as band-aid over scratch) in field log and in weekly reporting
2. For <i>life-threatening injuries / illnesses</i> - make scene safe, contact local emergency personnel  For <i>non life-threatening injuries / illnesses</i> - make scene safe, transport injured person to doctor at an occupational medical facility  For <i>vehicle accidents</i> – make scene safe, notify police, aid injured parties  For <i>equipment / property damage</i> - make scene safe, prevent further damage or injuries	Field Team Leader or SSHO <i>Immediately (concurrently with next step if injury or illness)</i>  Field Team Leader or SSHO <i>Immediately (concurrently with next step if injury or illness)</i>  Driver/passenger <i>Immediately</i>  Employee causing damage <i>Immediately</i>	In case of serious injury or illness requiring off-site medical care	Via ambulance    Via vehicle	Site Safety Officer or his delegate must immediately go to emergency care facility. Follow HS101 post accident alcohol and drug testing procedure.  Field Team Leader or SSHO must transport and stay with injured person until released from care.  Make medical personnel aware of Shaw's "restricted work will be provided" and "no prescriptions if possible" policies.  CORE clinics are the preferred urgent care facilities when possible, unless injury is severe and victim is transported by ambulance.

<i>Action</i>	<i>Who / When</i>	<i>Under what circumstances</i>	<i>How</i>	<i>Notes</i>
3. <b>Notify CORE (for injuries / illnesses to Shaw employees only)</b>	Field Team Leader or SSHO <i>Immediately, prior to transporting the injured employee, unless injuries are life threatening</i>	<ul style="list-style-type: none"> <li>• Serious injury requiring off-site medical care</li> <li>• If employee states that he/she has been exposed to any chemical or biological substance</li> <li>• If illness is work related</li> </ul>	CORE Medical 877-347-7429  Note: Outside Continental US call: 225-614-9561	<p>Not required for temporary agency and subcontractor labor</p> <p>Provide name of injured employee, name and phone # of treating medical facility, description of the incident</p> <p>CORE will help with medical facility coordination and follow-up care</p>
4. <b>Notify Program H&amp;S Manager</b>  <b>Notify Alternate H&amp;S Manager if Program H&amp;S Manager cannot be contacted.</b>	Field Team Leader or SSHO <i>Immediately (concurrently with providing transportation to occupational medical facility or EMS transport to hospital)</i>	All incidents except on-site first aid cases	See Incident Notification and Communication Contact List (attached)	Program H&S Manager will notify H&S Manager Federal ER&C, as appropriate

Action	Who / When	Under what circumstances	How	Notes
<p>5. Notify Shaw Notification Hotline / Help Desk</p>	<p>Field Team Leader/SSHO  <i>As soon as practical, but not longer than one hour after occurrence.</i></p> <p><i>Prior to sending an individual for medical treatment</i></p>	<ul style="list-style-type: none"> <li>• Illness and/or injury (doctors cases and above)</li> <li>• Any utility damage</li> <li>• Property damage (damage &gt; \$2,500.00)</li> <li>• Vehicle accidents (All)</li> <li>• Criminal activity (i.e. bomb threat, theft)</li> <li>• Natural disaster (all)</li> <li>• Explosion and/or fires (damage &gt; \$2,500.00 or result in injury)</li> <li>• Environmental spills/releases (incidents that requires regulatory notification or have an offsite impact)</li> <li>• Regulatory agency visit</li> <li>• Fatalities</li> </ul>	<p>Shaw Notification Hotline / Help Desk Phone Number: 866-299-3445</p> <p>Note - Outside the Continental US call: 225-215-5056</p>	<p>Request name of Hotline / Help Desk operator for future reference and note date/time of notification</p> <p>Project Manager will verbally report incident (including first aid cases with potential for future aggravation) to Program Manager  <i>As soon as reasonably possible, but not longer than two hours after occurrence</i></p>
<p>6. Complete forms:</p> <p><i>Injuries and illnesses:</i></p> <ul style="list-style-type: none"> <li>• Authorization for Release of Protected Medical Information</li> <li>• Authorization for Treatment of Occupational Injury/Illness</li> <li>• Return-To-Work Examination Form</li> </ul> <p><u>and</u> fax to CORE  <u>and</u> email or fax to Program H&amp;S Manager</p>	<p>Injured employee and medical facility personnel (Project Manager or Field Team Leader is responsible for verifying forms are completed)</p> <p><i>Prior to leaving medical facility</i></p>	<ul style="list-style-type: none"> <li>• Serious injury requiring off-site medical care</li> <li>• If employee states that he/she has been exposed to any chemical or biological substance</li> </ul>	<p>Fax to CORE: 225-295-4846</p> <p>Email or fax to Program H&amp;S Manager</p>	<p>Field Team Leader or SSHO must take these forms with him/her to occupational medical facility or hospital (Contained in HS 020)</p> <p>Contact Program H&amp;S Manager for blank electronic forms or obtain forms from:  <a href="http://shawnet3.shawgrp.com/sites/eihs/federal/Lists/Announcements/DispForm.aspx?ID=8">http://shawnet3.shawgrp.com/sites/eihs/federal/Lists/Announcements/DispForm.aspx?ID=8</a></p>

<i>Action</i>	<i>Who / When</i>	<i>Under what circumstances</i>	<i>How</i>	<i>Notes</i>
7. Notify Marcia Musgrave	Field Team Leader	All incidents involving personnel (injuries, illnesses, vehicle accidents)	419-425-6160	
8. Notify NAVFAC RPM, FEAD, and Environmental Offices	Field Team Leader or SSHO	<ul style="list-style-type: none"> <li>• Work related illness and/or injury (doctors cases and above)</li> <li>• Any utility damage</li> <li>• Property damage</li> <li>• Vehicle accidents (All)</li> <li>• Explosion and/or fires</li> <li>• Environmental spills/releases (incidents that requires regulatory notification or have an offsite impact)</li> <li>• Fatalities</li> </ul>	See Incident Notification and Communication Contact List (att.)	
9. Call back Program H&S Manager to report on status of injured / ill employee	Field Team Leader or SSHO  <i>Prior to employee leaving medical facility</i>	All injuries and illnesses requiring off-site medical care	See Incident Notification and Communication Contact List (att.)	



Action	Who / When	Under what circumstances	How	Notes
<p>10. Complete forms (typed electronically):</p> <p>OSHA Recordable Cases</p> <ul style="list-style-type: none"> <li>Supervisor's Employee Injury/Illness Report Form</li> <li>Injured Employee Statement</li> <li>Witness Statement Form(s)</li> <li>USACE ENG 3394 form</li> </ul> <p>First Aid Cases (Doctor's)</p> <ul style="list-style-type: none"> <li>Supervisor's Employee Injury/Illness Report</li> <li>Injured Employee Statement</li> <li>Witness Statement Form(s)</li> </ul> <p>Email or Fax completed forms to Program H&amp;S Manager and CORE</p>	<ul style="list-style-type: none"> <li>Field Team Leader</li> <li>Witnesses</li> </ul> <p><i>As soon as possible – no later than 24 hours</i></p>	<p>All injuries, illnesses, and first aid cases</p>	<p>Email or fax to Program H&amp;S Manager</p> <hr/> <p>See Incident Notification and Communication Contact List (attached)</p> <hr/> <p>Fax to CORE:</p> <hr/> <p>225-295-4846</p>	<p>Field Team Leader or SSHO should have these forms with him/her at all times (Contained in HS 020)</p> <p>Contact Program H&amp;S Manager for blank electronic forms or obtain forms from:  <a href="http://shawnet3.shawgrp.com/sites/eihs/federal/Lists/Announcements/DispForm.aspx?ID=8">http://shawnet3.shawgrp.com/sites/eihs/federal/Lists/Announcements/DispForm.aspx?ID=8</a></p>
<p>11. Complete forms (typed electronically):</p> <p>Chargeable Vehicle Accidents</p> <ul style="list-style-type: none"> <li>Vehicle Accident Report</li> <li>Witness Statement Form(s)</li> <li>Driving Record Certification (Procedure HS800)</li> <li>USACE ENG 3394 form</li> </ul> <p>Non-Chargeable Vehicle Accidents</p> <ul style="list-style-type: none"> <li>Vehicle Accident Report</li> <li>Witness Statement Form(s)</li> <li>USACE ENG 3394 form</li> </ul> <p>Equipment, Property Damage and General Liability Incidents</p> <ul style="list-style-type: none"> <li>Equipment, Property Damage and General Liability Loss Report</li> <li>Witness Statement Form(s)</li> <li>USACE ENG 3394 form</li> </ul> <p>Email or Fax completed forms to Program H&amp;S Manager;</p>	<ul style="list-style-type: none"> <li>Field Team Leader</li> <li>Witnesses</li> </ul> <p><i>As soon as possible – no later than 24 hours</i></p>	<p>All vehicle accidents and /or all property damage</p>	<p>Email or fax to Program H&amp;S Manager</p> <hr/> <p>Health</p> <hr/> <p>See Incident Notification and Communication Contact List (attached)</p> <hr/>	<p>Field Team Leader or SSHO should have these forms with him/her at all times (Contained in HS 020)</p> <p>Contact Program H&amp;S Manager for blank electronic forms or obtain forms from:  <a href="http://shawnet3.shawgrp.com/sites/eihs/federal/Lists/Announcements/DispForm.aspx?ID=8">http://shawnet3.shawgrp.com/sites/eihs/federal/Lists/Announcements/DispForm.aspx?ID=8</a></p>



<i>Action</i>	<i>Who / When</i>	<i>Under what circumstances</i>	<i>How</i>	<i>Notes</i>
<p>13. Perform "Accident Review Board" (ARB) as required by HS020 - Coordinate through Program H&amp;S Manager</p> <p>Perform "Incident Review Board" (IRB) to extract lessons learned - Coordinate through Program H&amp;S Manager</p>	<p>Program H&amp;S Manager</p> <p><i>Within 10 days of incident</i></p>	<p>OSHA Recordable Cases</p> <p>Chargeable Vehicle Accidents</p> <p>Doctor's First Aid Cases</p> <p>Utility damage or significant property damage</p>		<p>An IRB is outside of the HS020 requirements for an ARB.</p>

**Incident Notification and Communication Contact List**  
**Project Name / Location: TO JU46 Naval Support Facility Indian Head**

**Project Number: 140662**

Name	Phone Number(s)	Fax Number	E-mail
<b>SHAW CONTACTS</b>			
<b>Shaw Notification Hotline/Helpdesk</b>	866-299-3445 225-215-5056 (Outside Continental US)	N/A	N/A
<b>CORE Medical Services</b> (Must be notified prior to or during transport to medical treatment center)	877-EHS-Shaw (877-347-7429)	(225) 295-4846	N/A
<b>Marcia Musgrave</b>	(419) 425-6160 (office) (419) 957-7142 (cell)	(419) 425-6039	<a href="mailto:marcia.musgrave@shawgrp.com">marcia.musgrave@shawgrp.com</a>
Program H&S Manager James Joice, CIH	(419) 424-4960 (office) (419) 306-3637 (cell)	(671) 472-0551	<a href="mailto:james.joice@shawgrp.com">james.joice@shawgrp.com</a>
Site Health and Safety Officer Michael Hart	(757) 613-1754 (cell)	N/A	<a href="mailto:michael.hart@shawgrp.com">michael.hart@shawgrp.com</a>
Alternate HSM Mike Harrison	(757) 640 6950 office (618) 599 3838 Cell	(757) 640 6201	<a href="mailto:michael.harrison@shawgrp.com">michael.harrison@shawgrp.com</a>
Site Superintendent Brian Harris	(757) 846-4423 (cell)	N/A	<a href="mailto:brian.harris@shawgrp.com">brian.harris@shawgrp.com</a>
Project Manager Steve Carriere	(609) 234-6361 (cell)	N/A	<a href="mailto:steve.carriere@shawgrp.com">steve.carriere@shawgrp.com</a>
<b>Program Manager</b> <b>Jim Dunn</b>	(757) 640-6932 (office) (757) 373-9117 (cell)	(757) 640-6201	<a href="mailto:james.dunn@shawgrp.com">james.dunn@shawgrp.com</a>
<b>Federal ERC; CSL West H&amp;S Manager</b> <b>Dave Mummert</b>	(419) 425-6129 (office) (419) 348-1544 (cell)	(419) 425-6039	<a href="mailto:david.mummert@shawgrp.com">david.mummert@shawgrp.com</a>
E&I Executive H&S Director Troy Allen	(225) 932-2579 (office) (225) 229-1759 (cell)	(225) 987-3454	<a href="mailto:troy.allen@shawgrp.com">troy.allen@shawgrp.com</a>

NAVY CONTACTS			
NAVFAC RPM Nathan DeLong	(202) 685-3279 (office)	(202) 685-0615	<a href="mailto:nathan.delong@navy.mil">nathan.delong@navy.mil</a>
NAVFAC FEAD Cathy Gardner	(301) 744-2181 (office)	N/A	<a href="mailto:cathy.gardner@navy.mil">cathy.gardner@navy.mil</a>
Indian Head Environmental Department Nick Carros	(301) 744-2263 (office)	N/A	<a href="mailto:nicholas.carros@navy.mil">nicholas.carros@navy.mil</a>

Note: Incident reports shall be faxed or emailed only to the Program H&S Manager (or Alternate H&S Manager) for review and proper distribution.

**Bold lettering** denotes phone notifications that need to be made by the Project Manager

Revised February 11, 2011

# **ATTACHMENT 6**

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## ***ACCIDENT REPORTING INFORMATION***

- ☐ Initial Report  
☐ Follow-up Report  
☐ Final Report

## Contractor Significant Incident Report (CSIR)

<b>1. General Information</b>		
Contracting Activity/ROICC Office:		
Accident Classification:		
<input type="checkbox"/> Injury <input type="checkbox"/> Fatality <input type="checkbox"/> Environment <input type="checkbox"/> Procedural Issues <input type="checkbox"/> Lessons Learned <input type="checkbox"/> Illness <input type="checkbox"/> Property Damage <input type="checkbox"/> Other _____		
Involving:		
<input type="checkbox"/> Confined Space <input type="checkbox"/> Equip/Mrt Ver/Mat Handling (Heavy Construction Equip.) <input type="checkbox"/> Hazardous Material <input type="checkbox"/> Crane and Rigging <input type="checkbox"/> Equip/Mrt Ver/Mat Handling(Material Handling) <input type="checkbox"/> Trenching/Excavation <input type="checkbox"/> Diving <input type="checkbox"/> Equip/Mrt Ver/Mat Handling (Man-Lift/Elevated Platform) <input type="checkbox"/> Waterfront/Marine <input type="checkbox"/> Demolition/Renovation <input type="checkbox"/> Fall from Ladder <input type="checkbox"/> Fall from Scaffold <input type="checkbox"/> Other _____ <input type="checkbox"/> Electrical <input type="checkbox"/> Fall from Roof <input type="checkbox"/> Fire		
<b>2. Personal Information</b>		
Name (Last, First, MI):		Age:      Sex:
Job Title/Description	Employed By:	
Supervisor Name (Last, First, MI) & Title:	Was the person trained to perform this activity/task? <input type="checkbox"/> Yes <input type="checkbox"/> No	
What type of training was received (OJT, classroom, etc.)?	Date of the most recent formal training and topics discussed?	
<b>3. Witness Information</b>		
Witness #1: Name (Last, First, MI):	Job Title/Description	
Employed By:	Supervisor Name (Last, First, MI):	
Witness #2: Name (Last, First, MI):	Job Title/Description:	
Employed By:	Supervisor Name (Last, First, MI):	
Additional Witnesses: <span style="float: right;"><input type="checkbox"/> Yes      <input type="checkbox"/> No</span> (List any additional witnesses on a separate sheet and attach.)		

#### 4. Contract Information

**Type of Contract:**

☐ A/E    ☐ BOS    ☐ CLEAN    ☐ Construction    ☐ Design Build    ☐ FSCC    ☐ FSSC  
☐ JOC    ☐ RAC    ☐ Service    ☐ Other \_\_\_\_\_

**Contract Number & Title:**

**Industrial Group & Industrial Type:**

**Prime Contractor Name/Address/Phone & Fax No:**

**Subcontractor Name/Address/Phone & Fax No:**

**Safety Manager (Last, First, MI):**

**Safety Manager (Last, First, MI):**

**Insurance Carrier:**

**Insurance Carrier:**

#### 5. Accident Description

**Date of Accident:** \_\_\_\_\_ **Time of Accident:** \_\_\_\_\_ **Exact Location of Accident:** \_\_\_\_\_

Describe the accident in detail in your words: (Use the back of page if you need additional space)

**Direct Cause(s) of Accident:**



FINAL ACCIDENT PREVENTION PLAN  
REMOVAL ACTIONS AT SITES 19 AND 27  
NAVAL SUPPORT FACILITY INDIAN HEAD, INDIAN HEAD, MARYLAND  
PROJECT NO. 140662

Indirect Cause (s) of Accident:	
Action(s) taken to prevent re-occurrence or provide ongoing corrective actions:	
Corrective Action Beginning Date:	Anticipated Completion Date:
Personal Protective Equipment: <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <span><input type="checkbox"/> Available and used</span> <span><input type="checkbox"/> Available and not used</span> <span><input type="checkbox"/> Not Required</span> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <span><input type="checkbox"/> Not related to Mishap</span> <span><input type="checkbox"/> Wrong PPE for job</span> </div> <p style="margin-top: 10px;"><b>List PPE Used:</b></p> <div style="height: 40px;"></div>	
Type of Construction Equipment (Make, Model, Serial #, VIN#) Involved:	
Was Hazardous Material Spilled/Released? <span style="float: right;"><input type="checkbox"/> Yes <input type="checkbox"/> No</span> Please List Hazardous Material(s) Involved: <div style="height: 30px;"></div>	
Who provided first aid or cleanup of mishap site?	
Any blood-borne pathogen exposure, other than EMTs? <span style="float: right;"><input type="checkbox"/> Yes <input type="checkbox"/> No</span> Who? <div style="height: 30px;"></div>	
List OSHA and EM-385-1-1 standards that were violated:	
Was site secured and witness statements taken immediately? <span style="float: right;"><input type="checkbox"/> Yes <input type="checkbox"/> No</span> By Whom? <div style="height: 60px;"></div>	

## 6. Injury Illness/Fatality Information

### Severity of Injury/Illness:

- |   |   |
|---|---|
| <input type="checkbox"/> Fatality                     | <input type="checkbox"/> Lost Workday Case Involving Days Away From Work  |
| <input type="checkbox"/> Temporary Disability         | <input type="checkbox"/> Recordable Workday Case Involving Restricted Duty  |
| <input type="checkbox"/> Permanent Total Disability   | <input type="checkbox"/> Other Recordable Cases <span style="float: right;"><input type="checkbox"/> Recordable First Aid Case</span> |
| <input type="checkbox"/> Permanent Partial Disability | <input type="checkbox"/> Non-Recordable Case <span style="float: right;"><input type="checkbox"/> No Injury</span>                    |

Estimated Days Lost:

Estimated Days Hospitalized:

Estimated Days Restricted Duty:

List Primary Body Part Affected:

List Other Body Part(s) Affected:

Nature of Injury/Illness for Primary Body Part (Examples: Amputation, Burn, Hernia):

Type of Accident (Examples: Fall same level, Lifting, Bitten, Exerted):

Source of Accident (Examples: Crane, Carbon Monoxide, Ladder, Welding Equipment):

## 7. Causal Factors (Explain answers on supplementary sheet)

- |   |  |
|---|--|
| • Design – Design of facility, workplace, or equipment was a factor?  | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| • Inspection/Maintenance – Inspection & Maintenance procedures were a factor?   | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| • Persons Physical Condition – In your opinion, the physical condition of the person was a factor?  | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| • Operation Procedures – Operating procedures were a factor?  | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| • Job Practices – One or more job safety/health practices not being followed when the accident occurred contributed to the accident?  | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| • Human Factors – One or more human factors, such as a person's size or strength contributed to the accident?   | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| • Environmental Factors – Heat, cold dust, sun, glare, etc., contributed to the accident?   | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| • Chemical and Physical Agent Factors – Exposure to chemical agents, such as dust, fumes, mist, vapors, or physical agents such as noise, radiation, etc., contributed to the accident? | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| • Office Factors – Office setting such as lifting office furniture, carrying, stooping, contributed to the accident?  | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| • Support Factors – Inappropriate tools/resources were provided to perform the task?  | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| • PPE – Improper selection, use or maintenance of PPE contributed to the accident?  | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| • Drugs/Alcohol – In your opinion, were drugs or alcohol a factor?  | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| • Job Hazard Analysis – The lack of an adequate (IAW-EM-385-1-1 Sec. 01.A) activity hazard analysis was a contributing factor.  | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| • Job Hazard Analysis – JHA was not site specific and/or did not address the type of work/operations performed when the mishap occurred.  | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| • Management – A lack of adequate supervision contributed to the accident.  | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| • Management – Inadequate information was provided at pre-con meeting.  | <input type="checkbox"/> Yes <input type="checkbox"/> No |

<b>8. OSHA Information</b>			
Date OSHA was notified:	Date(s) of Investigation	Date of Citation: (Attach Copy)	Dollar Amount of Penalties:
<b>9. Report Preparer</b>			
Name (Last, First, MI):		Date of Report:	
Title:		Signature:	
Employer:			
Phone #:			

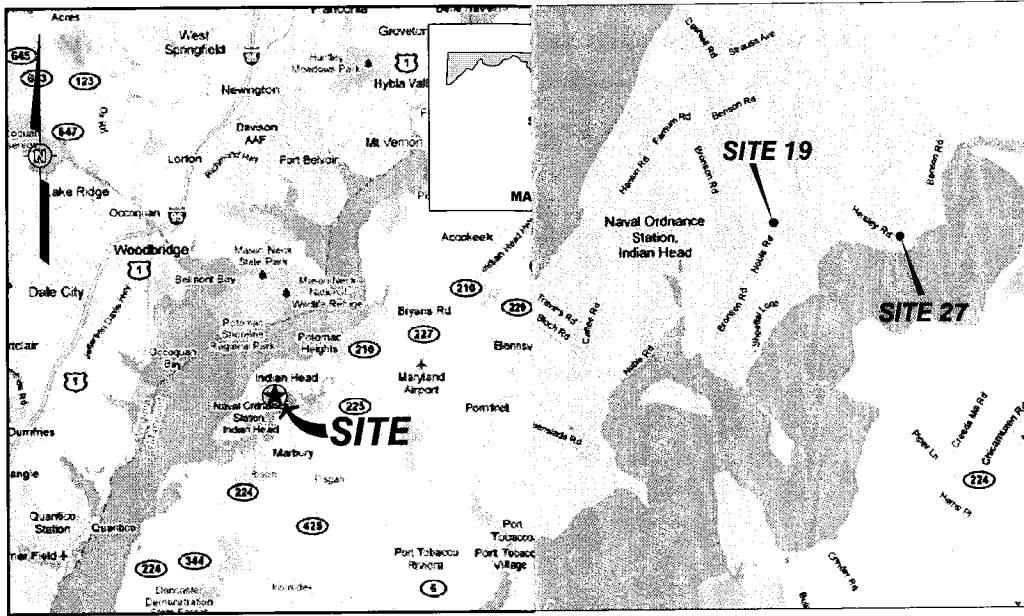
## APPENDIX C

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### *EROSION AND SEDIMENT CONTROL PLAN*

OFFICE  
Pittsburgh, PA

DRAWING  
NUMBER 140662-T1



SITE LOCATION MAP   SITE VICINITY MAP

# ERCNT

## NAV1007

# NAVAL SUARYLAND

# DIY

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Plotted By: greg.jones



INDIAN HEAD, MARYLAND  
SITE 19 AND SITE 27  
TITLE SHEET

SCALE: AS SHOWN  
TASK ORDER NO. JU46  
CONSTR. CONTRACT NO. N62470-08-D-1007  
NAVFAC DRAWING NO.

SHEET I.D.  
T-1

REVISIONS				DESCRIPTION/ISSUE	
REV	DATE	BY	CHK'D	APR'D	
1	10/21/10	BY			

DESIGNED BY P. Gombel  
CHECKED BY P. Verno  
DRAWN BY C. Jones  
APPROVED BY S. Carriere

### LEGEND:

- 25' EXISTING GROUND SURFACE
- EXISTING WATER FEATURE
- LOD LIMITS OF CLEARING/DISTURBANCE
- SF SILT FENCE
- EXISTING ROAD

### EROSION CONTROL

1. STABILIZED CONSTRUCTION ENTRANCE SHALL BE I RIGHT-OF-WAYS. THIS MAY REQUIRE ADDING STOP TRACKED ONTO PUBLIC RIGHT-OF-WAYS MUST BE I MAINTENANCE AND INSPECTION IS REQUIRED.
2. SILT FENCE SHALL BE INSPECTED AFTER EACH RAI ACCUMULATION REACHES 50% OF THE FABRIC HEI
3. EARTH DIKE SHALL BE INSPECTED AFTER EACH RA
4. ALL EROSION CONTROL MATTING SHALL BE INSPEC CHECK FOR EROSION AND UNDERMINING. ANY DISI OCCURS, REINSTALL THE MATERIAL AFTER REPAIR BECOME PERMANENTLY STABILIZED.

HE WMA, AND A REPRESENTATIVE OF THE  
TERMINE IF EROSION AND SEDIMENT CONTROL  
MEASURES. AFTER OBTAINING THE APPROVAL OF  
REMAINING DISTURBED AREAS.

SITE 19 AND SITE 27 ARE LOCATED AT NAVAL SUPPO  
ACTION IS PART OF THE INSTALLATION RESTORATIO  
SITE 27 ARE TO REMOVE AND DISPOSE OF CONTAMI  
UNACCEPTABLE RISK TO HUMAN HEALTH AND THE E  
CONTINUING SOURCE OF CONTAMINATION TO SOIL  
NAMED BUILDING 1584) AT SITE 27. SOIL AT SITE 19  
CONTAMINATED WITH ARSENIC AND CHROMIUM. EX  
EXCAVATION: LOWER-EXCAVATION AREA (0-4 FEET  
UPPER-EXCAVATION AREA (0 TO 0.5 FEET BGS). EXC  
SITE 27 WILL BE BACKFILLED TO MEET EXISTING GR

SITE PREPARATION WILL INCLUDE INSTALLATION OF  
PREPARATION OF SITE ACCESS AND MATERIAL STOCK  
UTILITIES; AND CLEARING OF TREES AND BRUSH. CC  
ACCESS ROAD BEHIND BUILDING 785. ACCESS TO SI  
CONSTRUCTED AT BOTH SITE 19 AND SITE 27. THE E  
THAT THEY ARE FUNCTIONING AS DESIGNED (SEE IN SHEET ES-03.

SOIL REMOVED AT SITE 19 WILL BE MIXED WITH LIME  
TRUCKS AND STAGED AT THE EXCAVATED MATERIAL  
STOCKPILED WITHIN THE EXCAVATION AREA AS SHC  
WHEN INACTIVE. THIS SOIL WILL BE LOADED OUT AND  
LOADED FOR TRANSPORTATION THE TRUCKS WILL E  
THE DISTURBED AREAS WILL BE BACKFILLED, GRAD

TO DIVERT CLEAN SURFACE WATER FROM  
P INLET PROTECTION FOR CULVERT.

SHEET ES-03.

PF

ND SEDIMENT CONTROL NOTES. CONTRACTOR SHALL

WITHIN THE LIMITS OF CLEARING/DISTURBANCE (ES-05).

CAVATION AREA (ES-05).

TO THE EXCAVATED MATERIAL STOCKPILE AREA.

SHEET ES-03.

S-04).



INDIAN HEAD, MARYLAND

SITE 19 AND SITE 27

NAVAL SUPPORT FACILITY

PROJECT DESCRIPTION AND SEQUENCE OF CONSTRUCTION

SCALE:  
AS SHOWN  
TASK ORDER NO.  
JU46  
CONSTR. CONTRACT NO.  
N62470-08-D-1007  
NAVFAC DRAWING NO.

ES-01

CHANGED TEXT IN PROJECT DESCRIPTION AND SEQUENCE		CHANGED TEXT IN PROJECT DESCRIPTION AND SEQUENCE		REVISIONS	
REV	DATE	BY	CHK'D	APPR'D	DESCRIPTION/ISSUE
2	11/1/10	PV			
1	10/21/10	PV			

DESIGNED BY	P. Gombie	CHECKED BY	P. Verma	APPROVED BY	S. Carriere
DRAWN BY	C. Jones				

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Plotted By: william.snyder

- [illegible]

**MNER/DEVELOPER SIGNATURE**

PRINTED NAME AND TITLE

**WARNING ! ENFORCED !!!**

[illegible]

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Plotted By: greg.jones

OF THE SEEDING SEASON, MULCH ALONE SHALL  
SECTION AND MAINTAINED UNTIL THE SEEDING  
WITH THESE SPECIFICATIONS.

i. INSTALL EROSION AND SEDIMENT CONTROL STRUCTURES. THE APPROVED EROSION AND SEDIMENT CONTROL STRUCTURES SHALL BE SPREAD OVER ALL SEEDING AREAS AT A RATE OF 100 LBS PER ACRE. MULCH SHALL BE APPLIED TO A UNIFORM LOOSE LAYER 2 INCHES THICK. MULCH APPLIED SHALL ACHIEVE A MINIMUM OF 90% COVERAGE. WHEN A MULCHING TOOL IS TO BE USED, THE RATE SHOULD BE 100 LBS PER ACRE.

ii. PERFORM GRADING OPERATIONS AT RIGHT ANGLES TO THE EROSION AND SEDIMENT CONTROL STRUCTURES. FINAL GRADING AND SHAPING SHALL BE DONE TO THE SATISFACTION OF THE LOCAL HEALTH DEPARTMENT. WHEN A GRADING TOOL IS TO BE USED, THE RATE SHOULD BE 100 LBS PER ACRE.

iii. SCHEDULE REQUIRED SOIL TESTS TO DETERMINE SOIL COMPOSITION AND APPLICATION RATES FOR SITE SPECIFIC NUTRIENT REQUIREMENTS. WHEN A SOIL TEST IS USED, IT SHALL BE APPLIED AT A MINIMUM OF 100 LBS PER ACRE. THE WOOD CELLULOSE FIBER SHALL BE APPLIED TO THE MANUFACTURER'S RECOMMENDATION.

- i SOIL TESTS MUST BE PERFORMED TO DETERMINE 1) APPLICATION RATES FOR BOTH LIME AND FERTILIZER IMMEDIATELY FOLLOWING MULCH APPLICATION TO DISTURBED AREAS OVER 5 ACRES. SOIL ANALY. WATER. UNIVERSITY OF MARYLAND OR A RECOGNIZED WITH A TRACTOR DRAWN IMPLEMENT DESIGNED SAMPLES TAKEN FOR ENGINEERING PURPOSES MO THE SOIL SURFACE A MINIMUM OF 2 INCHES. CHEMICAL ANALYSIS. AREAS, BUT IS LIMITED TO SLOPES WHERE IF USED ON SLOPING LAND, THIS PRACTICE
- ii FERTILIZERS SHALL BE UNIFORM IN COMPOSITION, IF POSSIBLE. FOR ACCURATE APPLICATION BY APPROVED EQUI. BE DELIVERED TO THE SITE, FULLY LABELED ACCORDING TO FERTILIZER LAWS AND SHALL BEAR THE NAME, IT DRY WEIGHT OF 750 LBS./ACRE. THE WOOD AND WARRANTY OF THE PRODUCER. WITH WATER, AND THE MIXTURE SHALL BE WOOD CELLULOSE FIBER PER 100 GALLONS
- iii LIME MATERIALS SHALL BE GROUND LIMESTONE (IT BE SUBSTITUTED) WHICH CONTAINS AT LEAST 50% BINDER SUCH AS ACRYLIC DRL (AGRO-TACK), PLUS MAGNESIUM OXIDE). LIMESTONE SHALL BE TERRA TACK AR, OR OTHER SIMILAR BINDER THAT AT LEAST 50% WILL PASS THROUGH A #100 BY THE MANUFACTURER TO ANCHOR WILL PASS THROUGH A #20 MESH SIEVE. BINDERS SHOULD BE APPLIED HEAVIER AT EDGES THAN IN VALLEYS AND ON CRESTS OF BANKS.
- iv INCORPORATE LIME AND FERTILIZER INTO TOP 3-4" AS IN UNIFORM AFTER BINDER APPLICATION. OTHER SUITABLE MEANS.

i TEMPORARY SEEDING

- a. SEEDBED PREPARATION SHALL CONSIST OF 3 INCHES TO 5 INCHES BY MEANS OF CONSTRUCTION EQUIPMENT, SUCH AS DIS RIPPER MOUNTED ON CONSTRUCTION EQUIP LOOSENEDED, IT SHOULD NOT BE ROLLED IN THE ROUGHENED CONDITION. PLACED (GREATER THAN 3:1) SHOULD BE TRACKI SURFACE IN AN IRREGULAR CONDITION W TO THE COUOTUR OF THE SLOPE.

b. APPLY FERTILIZER AND LIME AS PRESCRIBED RATE INTO THE TOP 3 TO 5 INCHES OF SOIL BY ANY AVAILABLE MEANS.		ZONE 7a)		FERTILIZER RATE (10-10-10)	LIME RATE
ii PERMANENT SEEDING		SEEDING DATES	SEEDING DEPTHS		
a.	MINIMUM TOPSOIL CONDITIONS REQUIRED FOR ESTABLISHMENT:	1-4/30 5-11/30	1-2 INCHES		
1.	SOIL pH SHALL BE BETWEEN 6.0 TO 7.0			600 lbs/ac (15 lbs/1000 sf)	2 tons/ac (100 lbs/1000 sf)
2.	SOLUBLE SALTS SHALL BE LESS THAN 11-11/30 (PPM).		1 INCH		
3.	THE SOIL SHALL CONTAIN LESS THAN 10% GRAINED MATERIAL (>30% SILT AND CLAY) CAPACITY TO HOLD A MODERATE AMOUNT OF WATER.				
4.	SOIL SHALL CONTAIN 1.5% MINIMUM ORGANIC MATTER.				
5.	SOIL MUST CONTAIN SUFFICIENT PERCENTAGE OF ROOT PENETRATION.				
6.	IF THESE CONDITIONS CANNOT BE MET, THE TOPSOIL IS REQUIRED IN ACCORDANCE WITH THE "STANDARD AND SPECIFICATION FOR TOPSOIL" BY THE NATURAL RESOURCES DEPARTMENT.				
		UND COVER FOR A MINIMUM PERIOD OF ONE YEAR ON THE SEEDING.			
		SEEDING SUMMARY			

b.	AREAS PREVIOUSLY GRADED IN CONFORM SHALL BE SCARIFIED OR OTHERWISE LOOEN INCHES PRIOR TO PLACEMENT OF TOPSO	7a)	FERTILIZER RATE* (10-20-20)			LIME* RATE
c.	APPLY FERTILIZER AND LIME AS PRESCRIBED AMENDMENTS INTO THE TOP 3-5 INCHES OR OTHER SUITABLE MEANS.	SEEDING DEPTHS	N	P205	K20	
d.	REMOVE LARGE OBJECTS LIKE STONES AL AREA FOR SEED APPLICATION. WHERE NORMAL SEEDBED PREPARATION, LOOSE A HEAVY CHAIN OR OTHER EQUIPMENT SLOPES (STEEPER THAN 3:1) SHOULD B THE SOIL IN AN IRREGULAR CONDITION	1 INCH	90 lb/ac (2 lb/ 1000 SF)	175 lb/ac (4 lb/ 1000 SF)	175 lb/ac (4 lb/ 1000 SF)	2 tons/a (100 lb/ 1000 SF)



**NAVFAC**  
Naval Facilities Engineering Command  
NAVFAC WASHINGTON



Image: NAVFAC

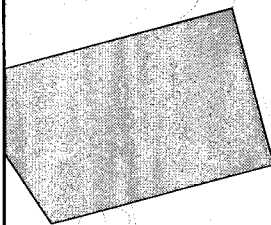
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Plotted by: greg.jones

OFFICE  
Pittsburgh, PA

DRAWING  
NUMBER

140662-D5



STABILIZ  
RAISED STEAM

1D)

STABILIZ<sup>A</sup>

ROW AREA

LET STRUCTURE  
2)  
TE 3)

**NOTES:**

1. EARTH DIKES WILL OUTLET INTO EXISTING CULVERT OUTLET
2. STONE OUTLET STRUCTURE WILL BE INSTALLED UP STREAM PROTECTION.
3. INSTALL RIPRAP INLET PROTECTION FOR CULVERT (450-8) RIPRAP LAYER THICKNESS WILL BE 12 INCHES AND WILL BE CLASS SE GEOTEXTILE ( MARYLAND SHA SPECIFICATION).
4. PUMPING OF SEDIMENT LADEN WATER IS NOT ANTICIPATE HOWEVER, THE PORTABLE SEDIMENT TANK WILL BE UTILIZED SHEET ES-06.



INDIAN HEAD, MARYLAND

SITE 19 AND SITE 27

EXCAVATION, AND EROSION AND SEDIMENT CONTROL PLAN SITE 19

SCALE: AS SHOWN  
TASK ORDER NO. JU46  
CONSTR. CONTRACT NO. N62470-08-D-1007  
NAVFAC DRAWING NO.

ES-04

REVISED NOTE 3 AND ADDED NOTE 4

REMOVED SITE 19 LIMITS AND RELOCATED STOCKPILE

DESCRIPTION/ISSUE

REVISIONS

DESIGNED BY	P. Gamble	CHECKED BY	P. Verma	10/12/10
DRAWN BY	C. Jones	APPROVED BY	S. Carriere	10/12/10

REV	1	DATE	10/12/10	BY	CHK'D	APR'D
2	11/1/10	PV				

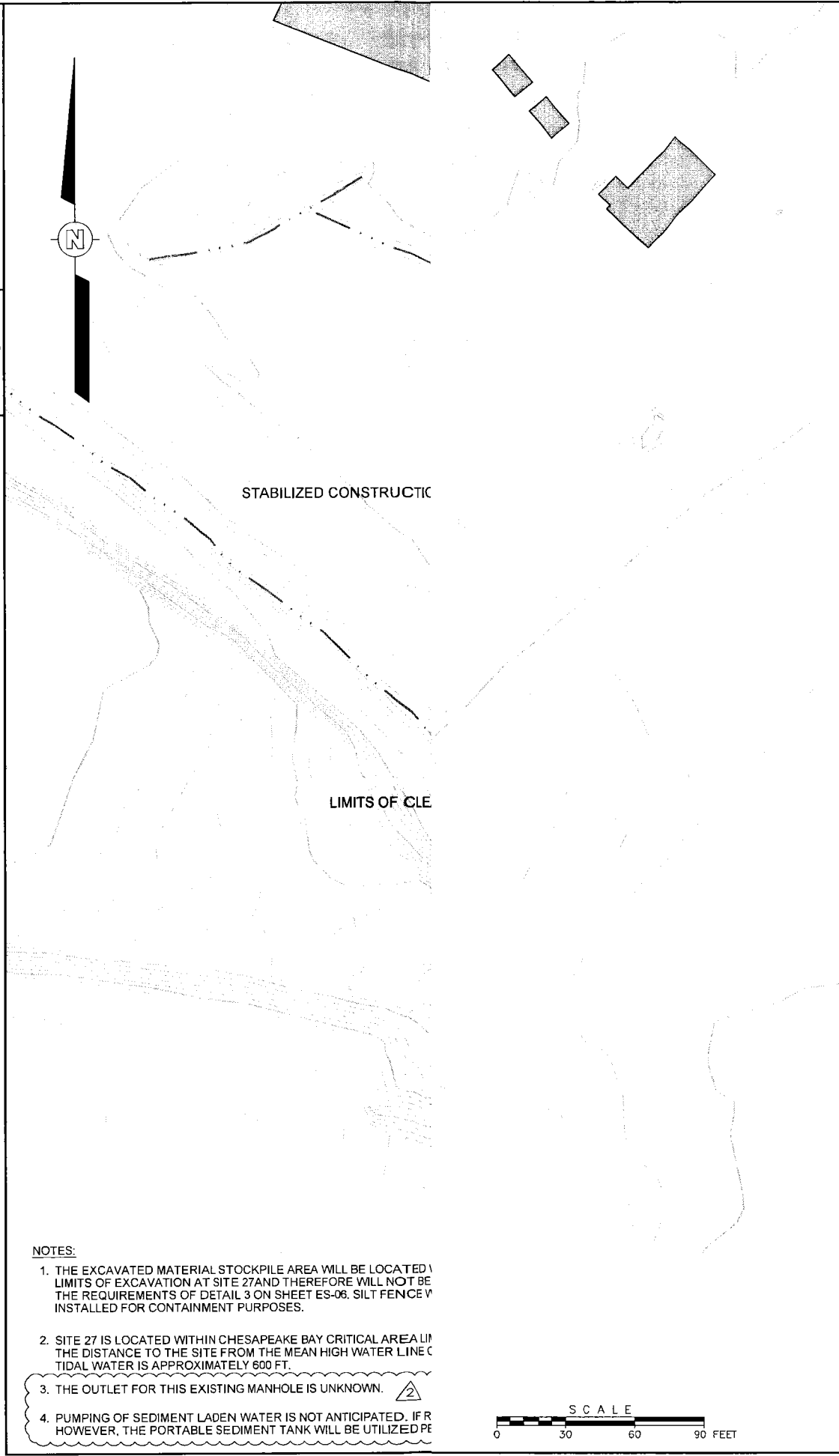
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OFFICE  
Pittsburgh, PA

DRAWING  
NUMBER 140662-D6



#### NOTES:

1. THE EXCAVATED MATERIAL STOCKPILE AREA WILL BE LOCATED WITHIN THE LIMITS OF EXCAVATION AT SITE 27 AND THEREFORE WILL NOT BE SUBJECT TO THE REQUIREMENTS OF DETAIL 3 ON SHEET ES-06. SILT FENCE WILL BE INSTALLED FOR CONTAINMENT PURPOSES.
2. SITE 27 IS LOCATED WITHIN CHESAPEAKE BAY CRITICAL AREA LIMITS. THE DISTANCE TO THE SITE FROM THE MEAN HIGH WATER LINE TO THE TIDAL WATER IS APPROXIMATELY 600 FT.
3. THE OUTLET FOR THIS EXISTING MANHOLE IS UNKNOWN.
4. PUMPING OF SEDIMENT LADEN WATER IS NOT ANTICIPATED. IF REQUIRED, HOWEVER, THE PORTABLE SEDIMENT TANK WILL BE UTILIZED PER DETAIL 3 ON SHEET ES-06.

SCALE  
0 30 60 90 FEET



NAVAL SUPPORT FACILITY  
SITE 19 AND SITE 27  
INDIAN HEAD, MARYLAND  
EXCAVATION, AND EROSION AND SEDIMENT CONTROL PLAN SITE 27



DESIGNED BY P. Gamble  
CHECKED BY P. Verma  
APPROVED BY S. Carriere  
DRAWN BY G. Jones

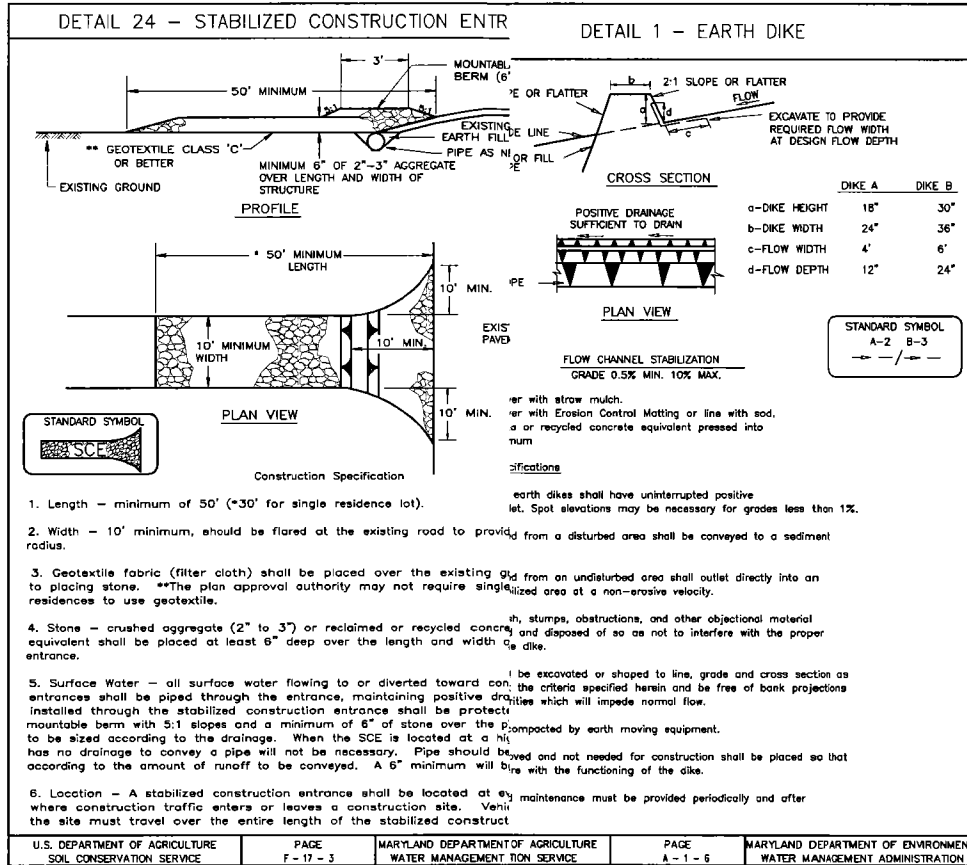
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REV 2 11/1/10  
REV 3 10/12/10

REV 1 10/21/10  
REV 2 11/1/10  
REV 3 10/12/10

REV 1 10/21/10  
REV 2 11/1/10  
REV 3 10/12/10

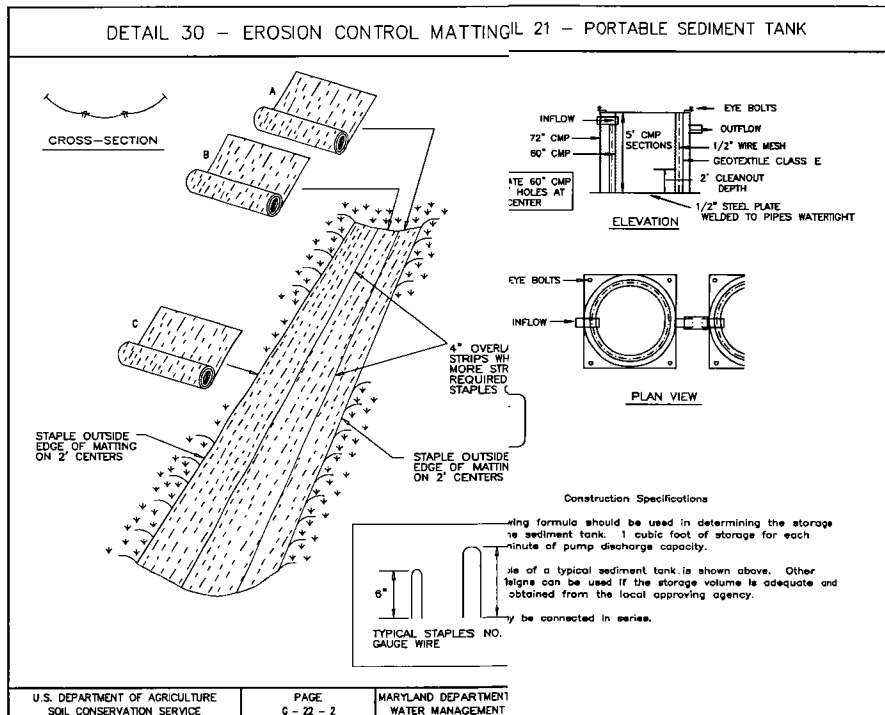
REV 1 10/21/10  
REV 2 11/1/10  
REV 3 10/12/10

ES-05



**DETAIL 1**  
**STABILIZED CONSTRUCTION ENTR**  
SCALE: N.T.S.

**DETAIL 4**  
**EARTH DIKE**  
SCALE: N.T.S.



**EROSION CONTROL MATTING**  
**DETAIL 7**  
**CHANNEL STABILIZATION SEDIMENT TANK**  
SCALE: N.T.S.

**Shaw**

DESIGNED BY P. Gombie  
DRAWN BY C. Jones  
CHECKED BY P. Verma  
APPROVED BY S. Corriera

DATE 10/12/10  
DATE 10/12/10  
DATE 10/12/10  
DATE 10/12/10

INDIAN HEAD, MARYLAND  
SITE 19 AND SITE 27  
EROSION AND SEDIMENT CONTROL PLAN DETAILS (1 OF 2)

SCALE: AS SHOWN  
SIZE: D

TASK ORDER NO. JU46  
CONSTR. CONTRACT NO. N62470-08-D-1007  
NAVFAC DRAWING NO.

**ES-06**

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Plot Date/Time: 05/07/09 12:49pm  
Plotted by: greg.jones

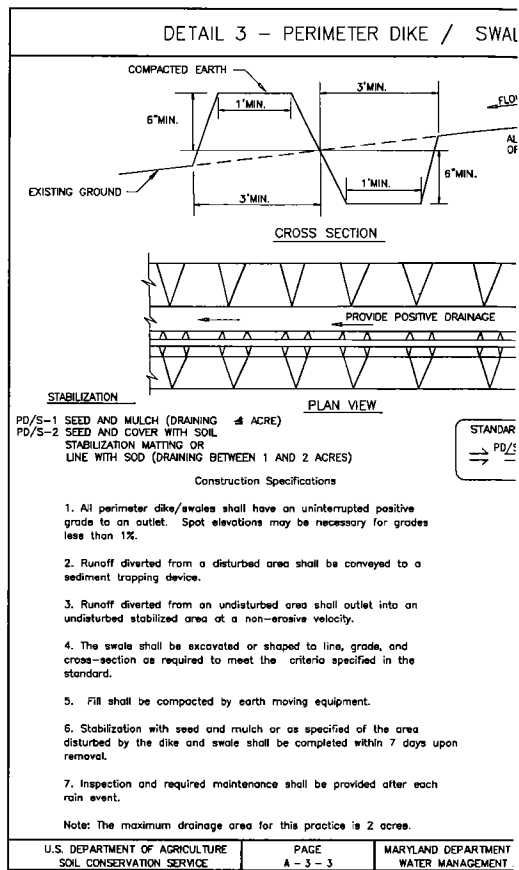
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OFFICE  
Pittsburgh, PA

DRAWING  
NUMBER

140662-D7



DETAIL 8  
ES-04, 05  
PERIMETER DIKE / SWALE  
SCALE: N.T.S.



INDIAN HEAD, MARYLAND  
SITE 19 AND SITE 27

SCALE: AS SHOWN SIZE: D  
TASK ORDER NO. JU46  
CONSTR. CONTRACT NO. N62470-08-D-1007  
NAVFAC DRAWING NO.

ES-07

DESCRIPTION / ISSUE

REVISIONS

CHK'D APR 10

BY

DATE

REV

10/12/10

P. Verma

CHECKED BY

10/6/10

P. Gombale

DESIGNED BY

10/6/10

C. Jones

DRAWN BY

10/6/10

APPROVED BY

10/12/10

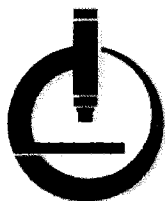
S. Carriera

EROSION AND SEDIMENT CONTROL PLAN DETAILS (2 OF 2)

## APPENDIX D

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### *LABORATORY ACCREDITATION LETTER*



**LABORATORY  
ACCREDITATION  
BUREAU**

# **Certificate of Accreditation**

**ISO/IEC 17025:2005**

**Certificate Number L2219**

**CHEMTECH**

284 Sheffield Street  
Mountainside, NJ 07092

has met the requirements set forth in L-A-B's policies and procedures, all requirements of ISO/IEC 17025:2005 "General Requirements for the competence of Testing and Calibration Laboratories" and the U.S. Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP).\*

The accredited lab has demonstrated technical competence to a defined "Scope of Accreditation" and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009).

**Accreditation Granted through: October 20, 2012**

**R. Douglas Leonard, Jr., Managing Director  
Laboratory Accreditation Bureau  
Presented the 20th of October, 2009**

\*See the laboratory's Scope of Accreditation for details of the DoD ELAP requirements

Laboratory Accreditation Bureau is found to be in compliance with ISO/IEC 17011:2004 and recognized by ILAC (International Laboratory Accreditation Cooperation) and NACLA (National Cooperation for Laboratory Accreditation).



## Scope of Accreditation For CHEMTECH

284 Sheffield Street  
Mountainside, NJ 07092  
Divyajit Mehta  
1- 908-789-8900

In recognition of a successful assessment to ISO/IEC 17025:2005 and the requirements of the DoD Environmental Laboratory Accreditation Program (DoD ELAP) as detailed in the DoD Quality Systems Manual for Environmental Laboratories (DoD QSM v4.1) based on the National Environmental Laboratory Accreditation Conference Chapter 5 Quality Systems Standard (NELAC Voted Revision June 5, 2003), accreditation is granted to CHEMTECH to perform the following tests:

Accreditation granted through: **October 20, 2012**

### Testing - Environmental

Non-Potable Water		
Technology	Method	Analyte
GC/ECD	EPA 8081A,B	4 4'-DDD
GC/ECD	EPA 8081A,B	4 4'-DDE
GC/ECD	EPA 8081A,B	4 4'-DDT
GC/ECD	EPA 8081A,B	Aldrin
GC/ECD	EPA 8081A,B	alpha-BHC (alpha-Hexachlorocyclohexane)
GC/ECD	EPA 8081A,B	alpha Chlordane
GC/ECD	EPA 8081A,B	beta-BHC (beta-Hexachlorocyclohexane)
GC/ECD	EPA 8081A,B	Chlordane (tech.)
GC/ECD	EPA 8081A,B	delta-BHC
GC/ECD	EPA 8081A,B	Dieldrin
GC/ECD	EPA 8081A,B	Endosulfan I
GC/ECD	EPA 8081A,B	Endosulfan II
GC/ECD	EPA 8081A,B	Endosulfan sulfate
GC/ECD	EPA 8081A,B	Endrin aldehyde
GC/ECD	EPA 8081A,B	Endrin ketone
GC/ECD	EPA 8081A,B	Endrin
GC/ECD	EPA 8081A,B	gamma-BHC (Lindane gamma-Hexachlorocyclohexane)
GC/ECD	EPA 8081A,B	gamma Chlordane
GC/ECD	EPA 8081A,B	Heptachlor epoxide
GC/ECD	EPA 8081A,B	Heptachlor
GC/ECD	EPA 8081A,B	Methoxychlor



**Non-Potable Water**

<b>Technology</b>	<b>Method</b>	<b>Analyte</b>
GC/MS	EPA 8260B,C	4-Chlorotoluene
GC/MS	EPA 8260B,C	4-Methyl-2-pentanone (MIBK)
GC/MS	EPA 8260B,C	Acetone
GC/MS	EPA 8260B,C	Acetonitrile
GC/MS	EPA 8260B,C	Acrolein (Propenal)
GC/MS	EPA 8260B,C	Acrylonitrile
GC/MS	EPA 8260B,C	1,1,2-Trichlorotrifluoroethane
GC/MS	EPA 8260B,C	Allyl chloride (3-Chloropropene)
GC/MS	EPA 8260B,C	Benzene
GC/MS	EPA 8260B,C	Bromobenzene
GC/MS	EPA 8260B,C	Bromochloromethane
GC/MS	EPA 8260B,C	Bromodichloromethane
GC/MS	EPA 8260B,C	Bromoform
GC/MS	EPA 8260B,C	Carbon disulfide
GC/MS	EPA 8260B,C	Carbon tetrachloride
GC/MS	EPA 8260B,C	Chlorobenzene
GC/MS	EPA 8260B,C	Chloroethane
GC/MS	EPA 8260B,C	Chloroform
GC/MS	EPA 8260B,C	Chloroprene
GC/MS	EPA 8260B,C	cis-1 2-Dichloroethylene
GC/MS	EPA 8260B,C	cis-1 3-Dichloropropene
GC/MS	EPA 8260B,C	cis-1 4-Dichloro-2-butene
GC/MS	EPA 8260B,C	Dibromochloromethane
GC/MS	EPA 8260B,C	Dibromomethane
GC/MS	EPA 8260B,C	Dichlorodifluoromethane
GC/MS	EPA 8260B,C	Ethyl acetate
GC/MS	EPA 8260B,C	Ethyl methacrylate
GC/MS	EPA 8260B,C	Ethylbenzene
GC/MS	EPA 8260B,C	Hexachlorobutadiene
GC/MS	EPA 8260B,C	Iodomethane (Methyl iodide)
GC/MS	EPA 8260B,C	Isobutyl alcohol (2-Methyl-1-propanol)
GC/MS	EPA 8260B,C	Isopropylbenzene
GC/MS	EPA 8260B,C	m+p-Xylenes
GC/MS	EPA 8260B,C	Methacrylonitrile
GC/MS	EPA 8260B,C	Methyl bromide (Bromomethane)
GC/MS	EPA 8260B,C	Methyl chloride (Chloromethane)
GC/MS	EPA 8260B,C	Methyl methacrylate
GC/MS	EPA 8260B,C	Methyl tert-butyl ether (MTBE)
GC/MS	EPA 8260B,C	Methylene chloride
GC/MS	EPA 8260B,C	Naphthalene
GC/MS	EPA 8260B,C	n-Butylbenzene
GC/MS	EPA 8260B,C	n-Propylbenzene
GC/MS	EPA 8260B,C	o-Xylene
GC/MS	EPA 8260B,C	p-Dioxane
GC/MS	EPA 8260B,C	Pentachloroethane





**Non-Potable Water**

<b>Technology</b>	<b>Method</b>	<b>Analyte</b>
GC/MS	EPA 8270C,D	4-Chlorophenyl phenylether
GC/MS	EPA 8270C,D	4-Methylphenol (p-Cresol)
GC/MS	EPA 8270C,D	4-Nitroaniline
GC/MS	EPA 8270C,D	4-Nitrophenol
GC/MS	EPA 8270C,D	Acenaphthene
GC/MS	EPA 8270C,D	Acenaphthylene
GC/MS	EPA 8270C,D	Acetophenone
GC/MS	EPA 8270C,D	Aniline
GC/MS	EPA 8270C,D	Anthracene
GC/MS	EPA 8270C,D	Benzidine
GC/MS	EPA 8270C,D	Benzo(a)anthracene
GC/MS	EPA 8270C,D	Benzo(a)pyrene
GC/MS	EPA 8270C,D	Benzo(b)fluoranthene
GC/MS	EPA 8270C,D	Benzo(g h i)perylene
GC/MS	EPA 8270C,D	Benzo(k)fluoranthene
GC/MS	EPA 8270C,D	Benzoic acid
GC/MS	EPA 8270C,D	Benzyl alcohol
GC/MS	EPA 8270C,D	bis(2-Chloroethoxy)methane
GC/MS	EPA 8270C,D	bis(2-Chloroethyl) ether
GC/MS	EPA 8270C,D	bis(2-Chloroisopropyl) ether (2,2'-Oxybis(1-chloropropane))
GC/MS	EPA 8270C,D	bis(2-Ethylhexyl) phthalate (DEHP)
GC/MS	EPA 8270C,D	Butyl benzyl phthalate
GC/MS	EPA 8270C,D	Carbazole
GC/MS	EPA 8270C,D	7,12-Dimethylbenz(a)anthracene
GC/MS	EPA 8270C,D	Chrysene
GC/MS	EPA 8270C,D	Dibenz(a,h)anthracene
GC/MS	EPA 8270C,D	Dibenzofuran
GC/MS	EPA 8270C,D	Diethyl phthalate
GC/MS	EPA 8270C,D	Dimethyl phthalate
GC/MS	EPA 8270C,D	Di-n-butyl phthalate
GC/MS	EPA 8270C,D	Di-n-octyl phthalate
GC/MS	EPA 8270C,D	Diphenylamine
GC/MS	EPA 8270C,D	Fluoranthene
GC/MS	EPA 8270C,D	Fluorene
GC/MS	EPA 8270C,D	Hexachlorobenzene
GC/MS	EPA 8270C,D	Hexachlorobutadiene
GC/MS	EPA 8270C,D	Hexachlorocyclopentadiene
GC/MS	EPA 8270C,D	Hexachloroethane
GC/MS	EPA 8270C,D	Indeno(1,2,3-cd)pyrene
GC/MS	EPA 8270C,D	Isophorone
GC/MS	EPA 8270C,D	Naphthalene
GC/MS	EPA 8270C,D	Nitrobenzene
GC/MS	EPA 8270C,D	n-Nitrosodimethylamine
GC/MS	EPA 8270C,D	n-Nitrosodi-n-propylamine



**Non-Potable Water**

<b>Technology</b>	<b>Method</b>	<b>Analyte</b>
ICP	EPA 6010B,C	Manganese
ICP	EPA 6010B,C	Molybdenum
ICP	EPA 6010B,C	Nickel
ICP	EPA 6010B,C	Potassium
ICP	EPA 6010B,C	Selenium
ICP	EPA 6010B,C	Silicon
ICP	EPA 6010B,C	Silver
ICP	EPA 6010B,C	Sodium
ICP	EPA 6010B,C	Thallium
ICP	EPA 6010B,C	Tin
ICP	EPA 6010B,C	Titanium
ICP	EPA 6010B,C	Vanadium
ICP	EPA 6010B,C	Zinc
ICP-MS	EPA 6020/6020A	Aluminum
ICP-MS	EPA 6020/6020A	Antimony
ICP-MS	EPA 6020/6020A	Arsenic
ICP-MS	EPA 6020/6020A	Barium
ICP-MS	EPA 6020/6020A	Beryllium
ICP-MS	EPA 6020/6020A	Boron
ICP-MS	EPA 6020/6020A	Cadmium
ICP-MS	EPA 6020/6020A	Calcium
ICP-MS	EPA 6020/6020A	Chromium
ICP-MS	EPA 6020/6020A	Cobalt
ICP-MS	EPA 6020/6020A	Copper
ICP-MS	EPA 6020/6020A	Iron
ICP-MS	EPA 6020/6020A	Lead
ICP-MS	EPA 6020/6020A	Magnesium
ICP-MS	EPA 6020/6020A	Manganese
ICP-MS	EPA 6020/6020A	Molybdenum
ICP-MS	EPA 6020/6020A	Nickel
ICP-MS	EPA 6020/6020A	Potassium
ICP-MS	EPA 6020/6020A	Selenium
ICP-MS	EPA 6020/6020A	Silicon
ICP-MS	EPA 6020/6020A	Silver
ICP-MS	EPA 6020/6020A	Sodium
ICP-MS	EPA 6020/6020A	Thallium
ICP-MS	EPA 6020/6020A	Tin
ICP-MS	EPA 6020/6020A	Titanium
ICP-MS	EPA 6020/6020A	Vanadium
ICP-MS	EPA 6020/6020A	Zinc
ISE	EPA 9040C	Corrosivity (pH)
ISE	EPA 9040C	pH
pH Paper	EPA 9041A	pH
ISE	EPA 9050	Conductivity
Physical	EPA 1010A	Ignitability



**Solid and Chemical Waste**

<b>Technology</b>	<b>Method</b>	<b>Analyte</b>
GC/ECD	EPA 8081A,B	Endrin
GC/ECD	EPA 8081A,B	gamma-BHC (Lindane gamma-Hexachlorocyclohexane)
GC/ECD	EPA 8081A,B	gamma Chlordane
GC/ECD	EPA 8081A,B	Heptachlor epoxide
GC/ECD	EPA 8081A,B	Heptachlor
GC/ECD	EPA 8081A,B	Methoxychlor
GC/ECD	EPA 8081A,B	Mirex
GC/ECD	EPA 8081A,B	Toxaphene (Chlorinated camphene)
GC/ECD	EPA 8082/8082A	Aroclor-1016 (PCB-1016)
GC/ECD	EPA 8082/8082A	Aroclor-1221 (PCB-1221)
GC/ECD	EPA 8082/8082A	Aroclor-1232 (PCB-1232)
GC/ECD	EPA 8082/8082A	Aroclor-1242 (PCB-1242)
GC/ECD	EPA 8082/8082A	Aroclor-1248 (PCB-1248)
GC/ECD	EPA 8082/8082A	Aroclor-1254 (PCB-1254)
GC/ECD	EPA 8082/8082A	Aroclor-1260 (PCB-1260)
GC/ECD	EPA 8151A	2 4 5-T
GC/ECD	EPA 8151A	2 4-D
GC/ECD	EPA 8151A	Dalapon
GC/ECD	EPA 8151A	Dicamba
GC/ECD	EPA 8151A	Dinoseb
GC/ECD	EPA 8151A	Picloram
GC/ECD	EPA 8151A	Silvex (2 4 5-TP)
GC/FID	EPA 8015B	Diesel range organics (DRO)
GC/MS	EPA 8015B	Ethylene glycol
GC/MS	EPA 8015B	GRO
GC/MS	EPA 8015B	Methanol
GC/MS	EPA 8260B,C	1 1 1 2-Tetrachloroethane
GC/MS	EPA 8260B,C	1 1 1-Trichloroethane
GC/MS	EPA 8260B,C	1 1 2 2-Tetrachloroethane
GC/MS	EPA 8260B,C	1 1 2-Trichloroethane
GC/MS	EPA 8260B,C	1,1,2-Trichlorotrifluoroethane
GC/MS	EPA 8260B,C	1 1-Dichloroethane
GC/MS	EPA 8260B,C	1 1-Dichloroethylene
GC/MS	EPA 8260B,C	1 1-Dichloropropene
GC/MS	EPA 8260B,C	1 2 3-Trichlorobenzene
GC/MS	EPA 8260B,C	1 2 3-Trichloropropane
GC/MS	EPA 8260B,C	1 2 4-Trichlorobenzene
GC/MS	EPA 8260B,C	1 2 4-Trimethylbenzene
GC/MS	EPA 8260B,C	1 2-Dibromo-3-chloropropane (DBCP)
GC/MS	EPA 8260B,C	1 2-Dibromoethane (EDB Ethylene dibromide)
GC/MS	EPA 8260B,C	1 2-Dichlorobenzene
GC/MS	EPA 8260B,C	1 2-Dichloroethane
GC/MS	EPA 8260B,C	1 2-Dichloropropane
GC/MS	EPA 8260B,C	1 3 5-Trimethylbenzene
GC/MS	EPA 8260B,C	1 3-Dichlorobenzene



**Solid and Chemical Waste**

<b>Technology</b>	<b>Method</b>	<b>Analyte</b>
GC/MS	EPA 8260B,C	Naphthalene
GC/MS	EPA 8260B,C	n-Butylbenzene
GC/MS	EPA 8260B,C	n-Propylbenzene
GC/MS	EPA 8260B,C	p-Dioxane
GC/MS	EPA 8260B,C	p-Isopropyltoluene
GC/MS	EPA 8260B,C	Propionitrile (Ethyl cyanide)
GC/MS	EPA 8260B,C	sec-Butylbenzene
GC/MS	EPA 8260B,C	Styrene
GC/MS	EPA 8260B,C	tert-butyl alcohol
GC/MS	EPA 8260B,C	tert-Butylbenzene
GC/MS	EPA 8260B,C	Tetrachloroethylene (Perchloroethylene)
GC/MS	EPA 8260B,C	Toluene
GC/MS	EPA 8260B,C	trans-1 2-Dichloroethylene
GC/MS	EPA 8260B,C	trans-1 3-Dichloropropylene
GC/MS	EPA 8260B,C	trans-1 4-Dichloro-2-butene
GC/MS	EPA 8260B,C	Trichloroethene (Trichloroethylene)
GC/MS	EPA 8260B,C	Trichlorofluoromethane
GC/MS	EPA 8260B,C	Vinyl acetate
GC/MS	EPA 8260B,C	Vinyl chloride
GC/MS	EPA 8260B,C	Xylene (total)
GC/MS	EPA 8270C,D	1 2 4 5-Tetrachlorobenzene
GC/MS	EPA 8270C,D	1 2 4-Trichlorobenzene
GC/MS	EPA 8270C,D	1 2-Dichlorobenzene
GC/MS	EPA 8270C,D	1 2-Diphenylhydrazine
GC/MS	EPA 8270C,D	1 3-Dichlorobenzene
GC/MS	EPA 8270C,D	1 4-Dichlorobenzene
GC/MS	EPA 8270C,D	2 3 4 6-Tetrachlorophenol
GC/MS	EPA 8270C,D	2 4 5-Trichlorophenol
GC/MS	EPA 8270C,D	2 4 6-Trichlorophenol
GC/MS	EPA 8270C,D	7 12-Dimethylbenz(a) anthracene
GC/MS	EPA 8270C,D	2 4-Dichlorophenol
GC/MS	EPA 8270C,D	2 4-Dimethylphenol
GC/MS	EPA 8270C,D	2 4-Dinitrophenol
GC/MS	EPA 8270C,D	2 4-Dinitrotoluene (2 4-DNT)
GC/MS	EPA 8270C,D	2 6-Dichlorophenol
GC/MS	EPA 8270C,D	2 6-Dinitrotoluene (2 6-DNT)
GC/MS	EPA 8270C,D	2-Chloronaphthalene
GC/MS	EPA 8270C,D	2-Chlorophenol
GC/MS	EPA 8270C,D	2-Methyl-4 6-dinitrophenol
GC/MS	EPA 8270C,D	2-Methylnaphthalene
GC/MS	EPA 8270C,D	2-Methylphenol (o-Cresol)
GC/MS	EPA 8270C,D	2-Nitroaniline
GC/MS	EPA 8270C,D	2-Nitrophenol
GC/MS	EPA 8270C,D	3 3'-Dichlorobenzidine
GC/MS	EPA 8270C,D	3-methylphenol



**Solid and Chemical Waste**

<b>Technology</b>	<b>Method</b>	<b>Analyte</b>
GC/MS	EPA 8270C,D	Naphthalene
GC/MS	EPA 8270C,D	Nitrobenzene
GC/MS	EPA 8270C,D	n-Nitrosodimethylamine
GC/MS	EPA 8270C,D	n-Nitroso-di-n-butylamine
GC/MS	EPA 8270C,D	n-Nitrosodi-n-propylamine
GC/MS	EPA 8270C,D	n-Nitrosodiphenylamine
GC/MS	EPA 8270C,D	Pentachlorophenol
GC/MS	EPA 8270C,D	Phenanthrene
GC/MS	EPA 8270C,D	Phenol
GC/MS	EPA 8270C,D	Pyrene
GC/MS	EPA 8270C,D	Pyridine
Gravimetric	EPA 1664A	Oil & Grease
Gravimetric	EPA 1664A	Total Petroleum Hydrocarbons (TPH)
HPLC	EPA 8330/8330A	1,3,5-Trinitrobenzene
HPLC	EPA 8330/8330A	1,3-Dinitrobenzene
HPLC	EPA 8330/8330A	2,4,6-Trinitrotoluene
HPLC	EPA 8330/8330A	2,4-Dinitrotoluene
HPLC	EPA 8330/8330A	2,6-Dinitrotoluene
HPLC	EPA 8330/8330A	2-Amino-4,6-Dinitrotoluene
HPLC	EPA 8330/8330A	2-Nitrotoluene
HPLC	EPA 8330/8330A	3-Nitrotoluene
HPLC	EPA 8330/8330A	4-Amino-2,6-Dinitrotoluene
HPLC	EPA 8330/8330A	4-Nitrotoluene
HPLC	EPA 8330/8330A	HMX
HPLC	EPA 8330/8330A	Nitrobenzene
HPLC	EPA 8330/8330A	RDX
HPLC	EPA 8330/8330A	Tetryl
Colorimetric	EPA 9012A	Total cyanide
CVAA	EPA 7471A,B	Mercury
Gravimetric	EPA 1664A	Oil & Grease
Gravimetric	EPA 9071B	Oil & Grease
IC	EPA 9056/9056A	Nitrite
IC	EPA 9056/9056A	Nitrate
IC	EPA 9056/9056A	Bromide
IC	EPA 9056/9056A	Chloride
IC	EPA 9056/9056A	Fluoride
IC	EPA 9056/9056A	O-phosphate
ICP	EPA 6010B,C	Aluminum
ICP	EPA 6010B,C	Antimony
ICP	EPA 6010B,C	Arsenic
ICP	EPA 6010B,C	Barium
ICP	EPA 6010B,C	Beryllium
ICP	EPA 6010B,C	Boron
ICP	EPA 6010B,C	Cadmium
ICP	EPA 6010B,C	Calcium



**Solid and Chemical Waste**

<b>Technology</b>	<b>Method</b>	<b>Analyte</b>
ICP-MS	EPA 6020/6020A	Zinc
pH Paper	EPA 9041A	pH
Probe	EPA 9045C	pH
ISE	EPA 9040C	pH/Corrosivity
TOC	EPA 9060/9060A	Total organic carbon
Physical	EPA 1010A	Ignitability
Titrimetric	EPA 9034	Sulfide
Turbidimetric	EPA 9038	Sulfate
Physical	EPA 9095A,B	Paint Filter Liquids Test
Preparation	EPA 3060A	Chromium VI
UV/VIS	EPA 7196A	Chromium VI
Distillation	EPA 9010C	Total cyanide
UV/VIS	EPA 9012A	Total cyanide
Distillation	EPA 9013	Total cyanide
UV/VIS	EPA 9065	Total phenolics
Preparation	EPA 1311	Toxicity Characteristic Leaching Procedure
Preparation	EPA 1312	SPLP
Ammonium Acetate	EPA 9080	Cation Exchange Capacity
Sodium Acetate	EPA 9081	Cation Exchange Capacity
<b>Preparation</b>	<b>Method</b>	<b>Type</b>
Organic Preparation	3550	Sonication
Organic Preparation	3541	Automated Soxhlet Extraction
Organic Preparation	3545A	Pressurized Fluid Extraction
Clean Up	3620C	Florisil Cleanup
Clean Up	3630	Silica Gel Cleanup
Clean Up	3640A	Gel-Permeation Cleanup
Clean Up	3660	Sulfur Cleanup
Clean Up	3665A	Sulfuric Acid/Permanganate Cleanup
Inorganics Preparation	3050B	Hotblock
Volatile Organics Preparation	5035A	Closed System Purge and Trap
Organic Preparation	3580A	Waste dilution
Distillation	9030B	Sulfide
Extraction/Titrimetric	9031	Sulfide
<b>Air</b>		
<b>Technology</b>	<b>Method</b>	<b>Analyte</b>
GC/MS	TO-15	4,4'-DDD
GC/MS	TO-15	1,1,1-Trichloroethane
GC/MS	TO-15	1,1,2,2-Tetrachloroethane
GC/MS	TO-15	1,1,2-Trichloroethane
GC/MS	TO-15	1,1,2-Trichlorotrifluoroethane
GC/MS	TO-15	1,1-Dichloroethane
GC/MS	TO-15	1,1-Dichloroethene



Air		
Technology	Method	Analyte
GC/MS	TO-15	Methyl tert-Butyl Ether
GC/MS	TO-15	Methylene Chloride
GC/MS	TO-15	Naphthalene
GC/MS	TO-15	o-Xylene
GC/MS	TO-15	Propene
GC/MS	TO-15	Styrene
GC/MS	TO-15	t-1,3-Dichloropropene
GC/MS	TO-15	tert-butyl alcohol
GC/MS	TO-15	Tetrachloroethene
GC/MS	TO-15	Tetrahydrofuran
GC/MS	TO-15	Toluene
GC/MS	TO-15	trans-1,2-Dichloroethene
GC/MS	TO-15	Trichloroethene
GC/MS	TO-15	Trichlorofluoromethane
GC/MS	TO-15	Vinyl Acetate
GC/MS	TO-15	Vinyl Chloride

Notes:

- 1) This laboratory offers commercial testing service.

Approved By: \_\_\_\_\_

R. Douglas Leonard  
Chief Technical Officer

Date: October 20, 2009

Issued: 10/20/09

New Jersey Department of Environmental Protection  
National Environmental Laboratory Accreditation Program  
**ANNUAL CERTIFIED PARAMETER LIST AND CURRENT STATUS**  
Effective as of 10/08/2010 until 06/30/2011



Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100004  
284 SHEFFIELD ST  
Mountainside, NJ 07092

Category: CAP03 – Atmospheric Organic Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	CAP03.00180	AE	GC/MS, Canisters	[EPA TO-15]	Acetaldehyde
Certified	Yes	NJ	CAP03.00184	AE	GC/MS, Canisters	[EPA TO-15]	Acetone
Certified	Yes	NJ	CAP03.00185	AE	GC/MS, Canisters	[EPA TO-15]	Acetonitrile
Certified	Yes	NJ	CAP03.00190	AE	GC/MS, Canisters	[EPA TO-15]	Acetophenone
Certified	Yes	NJ	CAP03.00195	AE	GC/MS, Canisters	[EPA TO-15]	Acrolein
Certified	Yes	NJ	CAP03.00200	AE	GC/MS, Canisters	[EPA TO-15]	Acrylamide
Certified	Yes	NJ	CAP03.00205	AE	GC/MS, Canisters	[EPA TO-15]	Acrylic acid
Certified	Yes	NJ	CAP03.00210	AE	GC/MS, Canisters	[EPA TO-15]	Acrylonitrile
Certified	Yes	NJ	CAP03.00215	AE	GC/MS, Canisters	[EPA TO-15]	Allyl chloride
Certified	Yes	NJ	CAP03.00220	AE	GC/MS, Canisters	[EPA TO-15]	Aniline
Certified	Yes	NJ	CAP03.00225	AE	GC/MS, Canisters	[EPA TO-15]	Benzene
Certified	Yes	NJ	CAP03.00230	AE	GC/MS, Canisters	[EPA TO-15]	Benzyl chloride
Certified	Yes	NJ	CAP03.00235	AE	GC/MS, Canisters	[EPA TO-15]	Propiolactone (beta-)
Certified	Yes	NJ	CAP03.00240	AE	GC/MS, Canisters	[EPA TO-15]	Bis (2-chloromethyl) ether
Certified	Yes	NJ	CAP03.00245	AE	GC/MS, Canisters	[EPA TO-15]	Bis (chloromethyl) ether
Certified	Yes	NJ	CAP03.00250	AE	GC/MS, Canisters	[EPA TO-15]	Bromodichloromethane
Certified	Yes	NJ	CAP03.00255	AE	GC/MS, Canisters	[EPA TO-15]	Bromoform
Certified	Yes	NJ	CAP03.00260	AE	GC/MS, Canisters	[EPA TO-15]	Bromomethane
Certified	Yes	NJ	CAP03.00265	AE	GC/MS, Canisters	[EPA TO-15]	Butadiene (1,3-)
Certified	Yes	NJ	CAP03.00270	AE	GC/MS, Canisters	[EPA TO-15]	Carbon disulfide
Certified	Yes	NJ	CAP03.00275	AE	GC/MS, Canisters	[EPA TO-15]	Carbon tetrachloride
Certified	Yes	NJ	CAP03.00280	AE	GC/MS, Canisters	[EPA TO-15]	Carbon oxysulfide (Carbonyl sulfide)
Certified	Yes	NJ	CAP03.00285	AE	GC/MS, Canisters	[EPA TO-15]	Catechol
Certified	Yes	NJ	CAP03.00290	AE	GC/MS, Canisters	[EPA TO-15]	Butadiene (2-chloro-1,3-)
Certified	Yes	NJ	CAP03.00295	AE	GC/MS, Canisters	[EPA TO-15]	Chloroacetic acid
Certified	Yes	NJ	CAP03.00300	AE	GC/MS, Canisters	[EPA TO-15]	Chlorobenzene
Certified	Yes	NJ	CAP03.00305	AE	GC/MS, Canisters	[EPA TO-15]	Chloroethane
Certified	Yes	NJ	CAP03.00310	AE	GC/MS, Canisters	[EPA TO-15]	Chloroform
Certified	Yes	NJ	CAP03.00315	AE	GC/MS, Canisters	[EPA TO-15]	Chloromethane
Certified	Yes	NJ	CAP03.00320	AE	GC/MS, Canisters	[EPA TO-15]	Chloromethyl methyl ether
Certified	Yes	NJ	CAP03.00325	AE	GC/MS, Canisters	[EPA TO-15]	Chlorotoluene (2-)

KEY: AE = Air and Emissions, BT = Biological Tissues, DW = Drinking Water, NPW = Non-Potable Water, SCM = Solid and Chemical Materials



New Jersey Department of Environmental Protection  
National Environmental Laboratory Accreditation Program  
**ANNUAL CERTIFIED PARAMETER LIST AND CURRENT STATUS**  
Effective as of 10/08/2010 until 06/30/2011



Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100004  
284 SHEFFIELD ST  
Mountainside, NJ 07092

Category: CAP03 – Atmospheric Organic Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	CAP03.00460	AE	GC/MS, Canisters	[EPA TO-15]	Ethyl carbamate (Urethane)
Certified	Yes	NJ	CAP03.00465	AE	GC/MS, Canisters	[EPA TO-15]	Ethylbenzene
Certified	Yes	NJ	CAP03.00470	AE	GC/MS, Canisters	[EPA TO-15]	Ethylene Oxide
Certified	Yes	NJ	CAP03.00475	AE	GC/MS, Canisters	[EPA TO-15]	Ethylencimine
Certified	Yes	NJ	CAP03.00480	AE	GC/MS, Canisters	[EPA TO-15]	Ethyltoluene (4-)
Certified	Yes	NJ	CAP03.00485	AE	GC/MS, Canisters	[EPA TO-15]	Formaldehyde
Applied	No	NJ	CAP03.00487	AE	GC/MS, Canisters	[EPA TO-15]	Gasoline range organic
Certified	Yes	NJ	CAP03.00490	AE	GC/MS, Canisters	[EPA TO-15]	Hexachlorobutadiene (1,3-)
Certified	Yes	NJ	CAP03.00495	AE	GC/MS, Canisters	[EPA TO-15]	Hexachloroethane
Certified	Yes	NJ	CAP03.00498	AE	GC/MS, Canisters	[EPA TO-15]	Hexanone (2-)
Certified	Yes	NJ	CAP03.00500	AE	GC/MS, Canisters	[EPA TO-15]	Heptane (n-)
Certified	Yes	NJ	CAP03.00505	AE	GC/MS, Canisters	[EPA TO-15]	Hexane (n-)
Certified	Yes	NJ	CAP03.00510	AE	GC/MS, Canisters	[EPA TO-15]	Isophorone
Certified	Yes	NJ	CAP03.00511	AE	GC/MS, Canisters	[EPA TO-15]	Isopropanol
Certified	Yes	NJ	CAP03.00515	AE	GC/MS, Canisters	[EPA TO-15]	Isopropylbenzene
Certified	Yes	NJ	CAP03.00520	AE	GC/MS, Canisters	[EPA TO-15]	Methyl alcohol (Methanol)
Certified	Yes	NJ	CAP03.00525	AE	GC/MS, Canisters	[EPA TO-15]	Methyl ethyl ketone
Certified	Yes	NJ	CAP03.00530	AE	GC/MS, Canisters	[EPA TO-15]	Methyl iodide
Certified	Yes	NJ	CAP03.00535	AE	GC/MS, Canisters	[EPA TO-15]	Methyl isobutyl ketone
Certified	Yes	NJ	CAP03.00540	AE	GC/MS, Canisters	[EPA TO-15]	Methyl isocyanate
Certified	Yes	NJ	CAP03.00545	AE	GC/MS, Canisters	[EPA TO-15]	Methyl methacrylate
Certified	Yes	NJ	CAP03.00550	AE	GC/MS, Canisters	[EPA TO-15]	Methyl tert-butyl ether
Certified	Yes	NJ	CAP03.00555	AE	GC/MS, Canisters	[EPA TO-15]	Methylene chloride (Dichloromethane)
Certified	Yes	NJ	CAP03.00560	AE	GC/MS, Canisters	[EPA TO-15]	Methylhydrazine
Certified	Yes	NJ	CAP03.00565	AE	GC/MS, Canisters	[EPA TO-15]	Methylphenol (2-)
Applied	No	NJ	CAP03.00567	AE	GC/MS, Canisters	[EPA TO-15]	Naphthalene
Certified	Yes	NJ	CAP03.00570	AE	GC/MS, Canisters	[EPA TO-15]	Nitrobenzene
Certified	Yes	NJ	CAP03.00575	AE	GC/MS, Canisters	[EPA TO-15]	Nitropropane (2-)
Certified	Yes	NJ	CAP03.00580	AE	GC/MS, Canisters	[EPA TO-15]	N-Nitrosodimethylamine
Certified	Yes	NJ	CAP03.00585	AE	GC/MS, Canisters	[EPA TO-15]	N-Nitrosomorpholine
Certified	Yes	NJ	CAP03.00590	AE	GC/MS, Canisters	[EPA TO-15]	N-Nitroso-N-methylurea
Certified	Yes	NJ	CAP03.00595	AE	GC/MS, Canisters	[EPA TO-15]	Phenol

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Laboratory Name: **CHEMTECH** Laboratory Number: **20012** Activity ID: **NLC100004**  
**284 SHEFFIELD ST**  
**Mountainside, NJ 07092**

Category: **CAP03 – Atmospheric Organic Parameters**

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	CAP03.00740	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Acetone
Applied	No	NJ	CAP03.00745	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Acetonitrile
Applied	No	NJ	CAP03.00750	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Acrylonitrile
Applied	No	NJ	CAP03.00755	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Aniline
Applied	No	NJ	CAP03.00760	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Benzene
Applied	No	NJ	CAP03.00765	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Butane
Applied	No	NJ	CAP03.00770	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Butanol (1-)
Applied	No	NJ	CAP03.00775	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Butoxyethanol
Applied	No	NJ	CAP03.00780	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Butoxyethylacetate
Applied	No	NJ	CAP03.00785	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Butyl Acetate (n-)
Applied	No	NJ	CAP03.00790	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Butyl Acetate (t-)
Applied	No	NJ	CAP03.00795	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Butyl aldehyde
Applied	No	NJ	CAP03.00800	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Carbon tetrachloride
Applied	No	NJ	CAP03.00805	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Chlorobenzene
Applied	No	NJ	CAP03.00810	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Cyclohexanone
Applied	No	NJ	CAP03.00815	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Decane (n-)
Applied	No	NJ	CAP03.00820	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Dichloroethane (1,2-)
Applied	No	NJ	CAP03.00825	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Dodecane (n-)
Applied	No	NJ	CAP03.00830	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Ethanol
Applied	No	NJ	CAP03.00835	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Ethoxyethanol
Applied	No	NJ	CAP03.00840	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Ethoxyethylacetate
Applied	No	NJ	CAP03.00845	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Ethyl acetate
Applied	No	NJ	CAP03.00850	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Ethyl acrylate
Applied	No	NJ	CAP03.00855	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Ethylbenzene
Applied	No	NJ	CAP03.00860	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Ethylbenzene (1-methyl-2-)
Applied	No	NJ	CAP03.00865	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Ethylbenzene (1-methyl-3-)
Applied	No	NJ	CAP03.00870	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Ethylbenzene (1-methyl-4-)
Applied	No	NJ	CAP03.00875	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Furfural
Applied	No	NJ	CAP03.00880	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Heptane (n-)
Applied	No	NJ	CAP03.00885	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Hexane (n-)
Applied	No	NJ	CAP03.00890	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Iso-butyl alcohol
Applied	No	NJ	CAP03.00895	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Isobutylacetate

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Effective as of 10/08/2010 until 06/30/2011



Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100004  
284 SHEFFIELD ST  
Mountainside, NJ 07092

Category: CAP03 – Atmospheric Organic Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	CAP03.01060	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Pyridine
Applied	No	NJ	CAP03.01065	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Propylbenzene (n-)
Applied	No	NJ	CAP03.01070	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Styrene
Applied	No	NJ	CAP03.01075	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Tetrachloroethane (1,1,1,2-)
Applied	No	NJ	CAP03.01080	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Tetrachloroethane (1,1,2,2-)
Applied	No	NJ	CAP03.01085	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Tetrachloroethene
Applied	No	NJ	CAP03.01090	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Toluene
Applied	No	NJ	CAP03.01095	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Trichloroethane (1,1,1-)
Applied	No	NJ	CAP03.01100	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Trichloroethane (1,1,2-)
Applied	No	NJ	CAP03.01105	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Trichloroethene
Applied	No	NJ	CAP03.01110	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Trimethylbenzene (1,2,3-)
Applied	No	NJ	CAP03.01115	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Trimethylbenzene (1,2,4-)
Applied	No	NJ	CAP03.01120	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Trimethylbenzene (1,3,5-)
Applied	No	NJ	CAP03.01125	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Xylenes (total)
Applied	No	NJ	CAP03.01130	AE	GC/MS, Sorbent Tubes	[EPA TO-17]	Undecane (n-)
Applied	No	NJ	CAP03.03620	AE	GC/ECD, HV PUF	[EPA TO-4A]	Aldrin
Applied	No	NJ	CAP03.03640	AE	GC/ECD, HV PUF	[EPA TO-4A]	Aroclor 1242
Applied	No	NJ	CAP03.03650	AE	GC/ECD, HV PUF	[EPA TO-4A]	Aroclor 1254
Applied	No	NJ	CAP03.03660	AE	GC/ECD, HV PUF	[EPA TO-4A]	Aroclor 1260
Applied	No	NJ	CAP03.03690	AE	GC/ECD, HV PUF	[EPA TO-4A]	BHC [Alpha and Beta]
Applied	No	NJ	CAP03.03700	AE	GC/ECD, HV PUF	[EPA TO-4A]	Lindane (gamma BHC)
Applied	No	NJ	CAP03.03740	AE	GC/ECD, HV PUF	[EPA TO-4A]	Chlordane
Applied	No	NJ	CAP03.03780	AE	GC/ECD, HV PUF	[EPA TO-4A]	D (2,4-)
Applied	No	NJ	CAP03.03790	AE	GC/ECD, HV PUF	[EPA TO-4A]	Dacthal (DCPA)
Applied	No	NJ	CAP03.03800	AE	GC/ECD, HV PUF	[EPA TO-4A]	DDE (4,4'-)
Applied	No	NJ	CAP03.03810	AE	GC/ECD, HV PUF	[EPA TO-4A]	DDT (4,4'-)
Applied	No	NJ	CAP03.03860	AE	GC/ECD, HV PUF	[EPA TO-4A]	Dieldrin
Applied	No	NJ	CAP03.03910	AE	GC/ECD, HV PUF	[EPA TO-4A]	Heptachlor
Applied	No	NJ	CAP03.03920	AE	GC/ECD, HV PUF	[EPA TO-4A]	Heptachlor epoxide
Applied	No	NJ	CAP03.03960	AE	GC/ECD, HV PUF	[EPA TO-4A]	Methoxychlor
Applied	No	NJ	CAP03.03990	AE	GC/ECD, HV PUF	[EPA TO-4A]	Mirex
Applied	No	NJ	CAP03.05170	AE	GC/ECD, LV PUF	[EPA TO-10A]	Aldrin

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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100004  
284 SHEFFIELD ST  
Mountainside, NJ 07092

Category: CAP03 – Atmospheric Organic Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	CAP03.06854	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Benzene
Applied	No	NJ	CAP03.06856	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Bromodichloromethane
Applied	No	NJ	CAP03.06858	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Bromoform
Applied	No	NJ	CAP03.06860	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Bromomethane
Applied	No	NJ	CAP03.06862	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Butadiene (1,3-)
Applied	No	NJ	CAP03.06864	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Carbon disulfide
Applied	No	NJ	CAP03.06866	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Carbon tetrachloride
Applied	No	NJ	CAP03.06868	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Chlorobenzene
Applied	No	NJ	CAP03.06870	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Chloroethane
Applied	No	NJ	CAP03.06872	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Chloroform
Applied	No	NJ	CAP03.06874	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Chloromethane
Applied	No	NJ	CAP03.06876	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Chlorotoluene (2-)
Applied	No	NJ	CAP03.06878	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Cyclohexane
Applied	No	NJ	CAP03.06880	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dibromochloromethane
Applied	No	NJ	CAP03.06882	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dibromoethane (1,2-) (EDB)
Applied	No	NJ	CAP03.06884	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dichlorobenzene (1,2-)
Applied	No	NJ	CAP03.06886	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dichlorobenzene (1,3-)
Applied	No	NJ	CAP03.06888	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dichlorobenzene (1,4-)
Applied	No	NJ	CAP03.06890	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dichlorodifluoromethane
Applied	No	NJ	CAP03.06892	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dichloroethane (1,1-)
Applied	No	NJ	CAP03.06894	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dichloroethane (1,2-)
Applied	No	NJ	CAP03.06896	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dichloroethene (1,1-)
Applied	No	NJ	CAP03.06898	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dichloroethene (cis-1,2-)
Applied	No	NJ	CAP03.06900	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dichloroethene (trans-1,2-)
Applied	No	NJ	CAP03.06902	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dichloropropane (1,2-)
Applied	No	NJ	CAP03.06904	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dichloropropene (cis-1,3-)
Applied	No	NJ	CAP03.06906	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dichloropropene (trans-1,3-)
Applied	No	NJ	CAP03.06908	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dichlorotetrafluoroethane (1,2-)
Applied	No	NJ	CAP03.06910	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Dioxane (1,4-)
Applied	No	NJ	CAP03.06912	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Ethanol
Applied	No	NJ	CAP03.06914	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Ethylbenzene
Applied	No	NJ	CAP03.06916	AE	GC/MS, Canisters	[OTHER NJDEP-LLTO-15-3/2007]	Ethyltoluene (4-)

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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100004  
284 SHEFFIELD ST  
Mountainside, NJ 07092

Category: SDW02 – Inorganic Parameters Including Na + Ca

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SDW02.01000	DW	Nephelometric	[EPA 180.1] [SM 2130 B]	Turbidity
Applied	No	NJ	SDW02.02000	DW	Automated Cadmium Reduction	[EPA 353.2]	Nitrate
Certified	Yes	NJ	SDW02.04000	DW	Ion Chromatography	[EPA 300.0]	Nitrate
Certified	Yes	NJ	SDW02.08000	DW	Ion Chromatography	[EPA 300.0]	Nitrite
Applied	No	NJ	SDW02.13000	DW	Manual Potentiometric Ion Select Electrode	[SM 4500-F C]	Fluoride
Certified	Yes	NJ	SDW02.14000	DW	Ion Chromatography	[EPA 300.0]	Fluoride
Applied	No	NJ	SDW02.15100	DW	Spectrophotometric, Distill, Manual	[SM 4500-CN C,E]	Cyanide
Certified	Yes	NJ	SDW02.18100	DW	Turbidity, Spectrophotometric	[SM 4500-SO4 E]	Sulfate
Certified	Yes	NJ	SDW02.19000	DW	Ion Chromatography	[EPA 300.0]	Sulfate
Certified	Yes	NJ	SDW02.20000	DW	ICP	[EPA 200.7]	Sodium
Certified	Yes	NJ	SDW02.24000	DW	Gravimetric At 180	[SM 2540 C]	Total dissolved solids (TDS)
Certified	Yes	NJ	SDW02.27000	DW	ICP	[EPA 200.7] [SM 3120 B]	Calcium
Certified	Yes	NJ	SDW02.27200	DW	Ca as Carbonate	[EPA 200.7]	Calcium-hardness
Certified	Yes	NJ	SDW02.27300	DW	Hardness By Calculation	[EPA 200.7]	Total hardness
Certified	Yes	NJ	SDW02.28000	DW	Titrimetric Indicator	[SM 2320 B]	Alkalinity
Certified	Yes	NJ	SDW02.29000	DW	Electrometric Titration	[SM 2320 B]	Alkalinity
Certified	Yes	NJ	SDW02.29310	DW	Automated Phenate	[SM 4500-NH3 G]	Ammonia
Applied	No	NJ	SDW02.29500	DW	Ion Chromatography	[EPA 300.0]	Bromide
Certified	Yes	NJ	SDW02.31000	DW	Ion Chromatography	[EPA 300.0]	Chloride
Certified	Yes	NJ	SDW02.31100	DW	Ion Chromatography	[EPA 300.0]	Chlorate
Applied	No	NJ	SDW02.31120	DW	Ion Chromatography	[EPA 314.0]	Perchlorate
Applied	No	NJ	SDW02.31125	DW	LC/MS or LC/MS/MS	[EPA 331.0]	Perchlorate
Applied	No	NJ	SDW02.31200	DW	Ion Chromatography	[EPA 300.1]	Chlorite (monthly)
Certified	Yes	NJ	SDW02.32000	DW	Platinum-Cobalt	[SM 2120 B]	Color
Certified	Yes	NJ	SDW02.33000	DW	Methylene Blue	[SM 5540 C]	Foaming agents
Certified	Yes	NJ	SDW02.34000	DW	Consistent Series	[SM 2150 B]	Odor
Certified	Yes	NJ	SDW02.35000	DW	Conductance	[SM 2510 B]	Conductivity
Applied	No	NJ	SDW02.36400	DW	ICP	[EPA 200.7]	Silica
Certified	Yes	NJ	SDW02.37000	DW	Colorimetric	[SM 4500-P E]	Orthophosphate
Certified	Yes	NJ	SDW02.38000	DW	Ion Chromatography	[EPA 300.0]	Orthophosphate
Certified	Yes	NJ	SDW02.39600	DW	High Temp. Combustion	[SM 5310 B]	Total organic carbon (TOC)

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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100004  
284 SHEFFIELD ST  
Mountainside, NJ 07092

Category: SDW04 -- Inorganic Parameters, Metals

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SDW04.57000	DW	ICP/MS	[EPA 200.8]	Selenium
Certified	Yes	NJ	SDW04.62000	DW	ICP	[EPA 200.7] [SM 3120 B]	Silver
Certified	Yes	NJ	SDW04.63000	DW	ICP/MS	[EPA 200.8]	Silver
Certified	Yes	NJ	SDW04.65000	DW	ICP/MS	[EPA 200.8]	Thallium
Certified	Yes	NJ	SDW04.67000	DW	ICP	[EPA 200.7] [SM 3120 B]	Zinc
Certified	Yes	NJ	SDW04.68000	DW	ICP/MS	[EPA 200.8]	Zinc

Category: SDW05 -- Organic Parameters, Chromatography

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	SDW05.12010	DW	Solvent Extract, GC	[EPA 504.1]	Dibromoethane (1,2-) (EDB)
Applied	No	NJ	SDW05.12020	DW	Solvent Extract, GC	[EPA 504.1]	Dibromo-3-chloropropane (1,2-)
Applied	No	NJ	SDW05.12030	DW	Solvent Extract, GC	[EPA 504.1]	Trichloropropane (1,2,3-)

Category: SDW06 -- Organic Parameters, Chromatography/MS

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SDW06.01010	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Bromoform
Certified	Yes	NJ	SDW06.01020	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Chloroform
Certified	Yes	NJ	SDW06.01030	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dibromochloromethane
Certified	Yes	NJ	SDW06.01040	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Bromodichloromethane
Certified	Yes	NJ	SDW06.02010	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Benzene
Certified	Yes	NJ	SDW06.02020	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Carbon tetrachloride
Certified	Yes	NJ	SDW06.02030	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Chlorobenzene
Certified	Yes	NJ	SDW06.02040	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichlorobenzene (1,2-)
Certified	Yes	NJ	SDW06.02050	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichlorobenzene (1,3-)
Certified	Yes	NJ	SDW06.02060	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichlorobenzene (1,4-)
Certified	Yes	NJ	SDW06.02070	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichloroethane (1,1-)
Certified	Yes	NJ	SDW06.02080	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichloroethane (1,2-)

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284 SHEFFIELD ST  
Mountainside, NJ 07092

Category: SDW06 – Organic Parameters, Chromatography/MS

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SDW06.03150	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichloropropane (1,3-)
Certified	Yes	NJ	SDW06.03160	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichloropropane (2,2-)
Certified	Yes	NJ	SDW06.03170	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichloropropene (1,1-)
Certified	Yes	NJ	SDW06.03180	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichloropropene (cis-1,3-)
Certified	Yes	NJ	SDW06.03190	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichloropropene (trans-1,3-)
Certified	Yes	NJ	SDW06.03200	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Hexachlorobutadiene (1,3-)
Certified	Yes	NJ	SDW06.03210	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Isopropylbenzene
Certified	Yes	NJ	SDW06.03220	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Isopropyltoluene (4-)
Certified	Yes	NJ	SDW06.03230	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Propylbenzene (n-)
Certified	Yes	NJ	SDW06.03240	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Tetrachloroethane (1,1,1,2-)
Certified	Yes	NJ	SDW06.03250	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Trichlorobenzene (1,2,3-)
Applied	No	NJ	SDW06.03251	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Trichlorobenzene (1,3,5-)
Certified	Yes	NJ	SDW06.03260	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Trichlorofluoromethane
Certified	Yes	NJ	SDW06.03270	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Trichloropropane (1,2,3-)
Certified	Yes	NJ	SDW06.03280	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Trimethylbenzene (1,2,4-)
Certified	Yes	NJ	SDW06.03300	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Trimethylbenzene (1,3,5-)
Certified	Yes	NJ	SDW06.03310	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Nitrobenzene
Certified	Yes	NJ	SDW06.03410	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Acetone
Certified	Yes	NJ	SDW06.03420	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Acrylonitrile
Certified	Yes	NJ	SDW06.03430	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Allyl chloride
Certified	Yes	NJ	SDW06.03440	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Butanone (2-)
Certified	Yes	NJ	SDW06.03450	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Carbon disulfide
Certified	Yes	NJ	SDW06.03460	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Chloroacetonitrile
Certified	Yes	NJ	SDW06.03470	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Chlorobutane (1-)
Certified	Yes	NJ	SDW06.03480	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichloro-2-butene (trans-1,4-)
Certified	Yes	NJ	SDW06.03490	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Dichloropropanone (1,1-)
Certified	Yes	NJ	SDW06.03500	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Diethyl ether (Ethyl ether)
Certified	Yes	NJ	SDW06.03510	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Ethyl methacrylate
Certified	Yes	NJ	SDW06.03520	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Hexachloroethane
Certified	Yes	NJ	SDW06.03530	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Hexanone (2-)
Certified	Yes	NJ	SDW06.03540	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Methacrylonitrile
Certified	Yes	NJ	SDW06.03550	DW	GC/MS, P & T or Direct Injection, Capillary	[EPA 524.2]	Methyl acrylate

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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100004  
284 SHEFFIELD ST  
Mountainside, NJ 07092

Category: CLP01 -- Multi-Media, Multi-Conc. Inorganics

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	CLP01.56103	NPW	ICP/MS	[EPA ISM01.2]	Sodium
Certified	Yes	NJ	CLP01.59102	NPW	ICP/MS	[EPA ILM05.4]	Thallium
Certified	Yes	NJ	CLP01.63102	NPW	ICP/MS	[EPA ILM05.4]	Vanadium
Certified	Yes	NJ	CLP01.66102	NPW	ICP/MS	[EPA ILM05.4]	Zinc

Category: SHW03 -- Analyze-Immediately Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW03.02000	NPW	Thermometric	[SM 2550 B]	Temperature

Category: SHW04 -- Inorganic Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW04.01000	NPW	Acid Digestion/Surface and Groundwater, ICP, FLAA	[SW-846 3005A]	Metals, Total Rec and Dissolved
Certified	Yes	NJ	SHW04.01500	NPW	Acid Digestion/Aqueous Samples, ICP, FLAA	[SW-846 3010A]	Metals, Total
Certified	Yes	NJ	SHW04.33000	NPW	AA, Manual Cold Vapor	[SW-846 7470A]	Mercury - liquid waste

Category: SHW05 -- Organic Parameters, Prep. / Screening

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW05.01000	NPW	Separatory Funnel Extraction	[SW-846 3510C]	Semivolatile organics
Certified	Yes	NJ	SHW05.02000	NPW	Continuous Liquid-Liquid Extraction	[SW-846 3520C]	Semivolatile organics
Applied	No	NJ	SHW05.02100	NPW	Solid Phase Extraction (SPE)	[SW-846 3535] [SW-846 3535A]	Semivolatile organics
Certified	Yes	NJ	SHW05.07000	NPW	Purge & Trap Aqueous	[SW-846 5030B]	Volatile organics

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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100004  
284 SHEFFIELD ST  
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Category: WPP02 – Inorg. Parameters, Nutrients and Demands

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	WPP02.20500	NPW	Digestion, Distillation, Titration	[SM 4500-N Org B or C]	Kjeldahl nitrogen - total
Certified	Yes	NJ	WPP02.24000	NPW	Digestion, ICP	[EPA 200.7]	Magnesium
Applied	No	NJ	WPP02.24050	NPW	ICP/MS	[EPA 200.8]	Magnesium
Certified	Yes	NJ	WPP02.26100	NPW	Ion Chromatography	[EPA 300.0]	Nitrate
Applied	No	NJ	WPP02.27000	NPW	Cadmium Reduction, Automated	[EPA 353.2]	Nitrate - nitrite
Applied	No	NJ	WPP02.27010	NPW	Ion Chromatography	[EPA 300.0]	Nitrate - nitrite
Applied	No	NJ	WPP02.27500	NPW	Spectrophotometric Auto Hydrazine	[SM 4500-NO3 H]	Nitrate - nitrite
Certified	Yes	NJ	WPP02.28000	NPW	Spectrophotometric, Manual	[SM 4500-NO2 B]	Nitrite
Certified	Yes	NJ	WPP02.28600	NPW	Ion Chromatography	[EPA 300.0]	Nitrite
Certified	Yes	NJ	WPP02.29100	NPW	Gravimetric, Hexane Extractable Material-LL	[EPA 1664A]	Oil & grease - hem-LL
Certified	Yes	NJ	WPP02.29150	NPW	Gravimetric, Hexane Extractable Material-SPE	[EPA 1664A]	Oil & grease - hem-SPE
Certified	Yes	NJ	WPP02.29200	NPW	Gravimetric, Silica Gel Treated-Hem	[EPA 1664A]	Oil & grease - sgt-non polar
Certified	Yes	NJ	WPP02.29250	NPW	Gravimetric, Silica Gel Treated-Hem-SPE	[EPA 1664A]	Oil & grease - non polar
Certified	Yes	NJ	WPP02.30000	NPW	Combustion or Oxidation	[SM 5310 B, C or D]	Total organic carbon (TOC)
Certified	Yes	NJ	WPP02.30500	NPW	Total Kjeldahl-N Minus Ammonia-N	[EPA 351.1, 2, 3, 4 - 350.1, 2, 3] [SM 4500-NH3 B, C, E, F, G, H]	Organic nitrogen
Certified	Yes	NJ	WPP02.31500	NPW	Ascorbic Acid, Manual Single Reagent	[SM 4500-P, E]	Orthophosphate
Certified	Yes	NJ	WPP02.32100	NPW	Ion Chromatography	[EPA 300.0]	Orthophosphate
Certified	Yes	NJ	WPP02.32500	NPW	Manual Distillation, Colorimetric 4AAP	[EPA 420.1]	Phenols
Certified	Yes	NJ	WPP02.34000	NPW	Persulfate Digestion + Manual	[EPA 365.3]	Phosphorus (total)
Certified	Yes	NJ	WPP02.36500	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Potassium
Applied	No	NJ	WPP02.36550	NPW	ICP/MS	[EPA 200.8]	Potassium
Certified	Yes	NJ	WPP02.38000	NPW	Gravimetric, 103-105 Degrees C	[SM 2540 B]	Residue - total
Certified	Yes	NJ	WPP02.38500	NPW	Gravimetric, 180 Degrees C	[SM 2540 C]	Residue - filterable (TDS)
Certified	Yes	NJ	WPP02.39000	NPW	Gravimetric, 103-105 Degrees C, Post Washing	[SM 2540 D]	Residue - nonfilterable (TSS)
Certified	Yes	NJ	WPP02.39500	NPW	Volumetric (Imhoff Cone) or Gravimetric	[SM 2540 F]	Residue - settleable
Certified	Yes	NJ	WPP02.40000	NPW	Gravimetric, 550 Degrees C	[EPA 160.4]	Residue - volatile
Certified	Yes	NJ	WPP02.40100	NPW	Gravimetric, 500 Degrees C	[SM 2540 G]	Total, fixed, and volatile solids (SQAR)
Applied	No	NJ	WPP02.41000	NPW	Hydrometric (Density Salinity Tables)	[SM 2520 C]	Salinity
Certified	Yes	NJ	WPP02.42500	NPW	0.45u Filtration + ICP	[EPA 200.7] [SM 3120 B]	Silica - dissolved
Certified	Yes	NJ	WPP02.44000	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Sodium
Applied	No	NJ	WPP02.44050	NPW	ICP/MS	[EPA 200.8]	Sodium

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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100004  
284 SHEFFIELD ST  
Mountainside, NJ 07092

Category: WPP04 – Inorganic Parameters, Metals

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	WPP04.08200	NPW	ICP/MS	[EPA 200.8]	Barium
Certified	Yes	NJ	WPP04.11000	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Beryllium
Certified	Yes	NJ	WPP04.11100	NPW	ICP/MS	[EPA 200.8]	Beryllium
Certified	Yes	NJ	WPP04.13500	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Cadmium
Certified	Yes	NJ	WPP04.13600	NPW	ICP/MS	[EPA 200.8]	Cadmium
Certified	Yes	NJ	WPP04.15000	NPW	0.45u Filter, Colorimetric DPC	[SM 3500-Cr D]	Chromium (VI)
Certified	Yes	NJ	WPP04.18000	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Chromium
Certified	Yes	NJ	WPP04.18100	NPW	ICP/MS	[EPA 200.8]	Chromium
Certified	Yes	NJ	WPP04.19500	NPW	Digestion, ICP	[EPA 200.7] [SM 3120B]	Cobalt
Certified	Yes	NJ	WPP04.19600	NPW	ICP/MS	[EPA 200.8]	Cobalt
Certified	Yes	NJ	WPP04.21500	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Copper
Certified	Yes	NJ	WPP04.21600	NPW	ICP/MS	[EPA 200.8]	Copper
Certified	Yes	NJ	WPP04.26500	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Iron
Applied	No	NJ	WPP04.26550	NPW	ICP/MS	[EPA 200.8]	Iron
Certified	Yes	NJ	WPP04.28000	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Lead
Certified	Yes	NJ	WPP04.28100	NPW	ICP/MS	[EPA 200.8]	Lead
Certified	Yes	NJ	WPP04.31000	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Manganese
Certified	Yes	NJ	WPP04.31100	NPW	ICP/MS	[EPA 200.8]	Manganese
Certified	Yes	NJ	WPP04.33000	NPW	Manual Cold Vapor	[EPA 245.1] [SM 3112 B]	Mercury
Certified	Yes	NJ	WPP04.35000	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Molybdenum
Certified	Yes	NJ	WPP04.35200	NPW	ICP/MS	[EPA 200.8]	Molybdenum
Certified	Yes	NJ	WPP04.37500	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Nickel
Certified	Yes	NJ	WPP04.37600	NPW	ICP/MS	[EPA 200.8]	Nickel
Certified	Yes	NJ	WPP04.45500	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Selenium
Certified	Yes	NJ	WPP04.45600	NPW	ICP/MS	[EPA 200.8]	Selenium
Certified	Yes	NJ	WPP04.48000	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Silver
Certified	Yes	NJ	WPP04.48200	NPW	ICP/MS	[EPA 200.8]	Silver
Certified	Yes	NJ	WPP04.50000	NPW	Digestion, ICP	[EPA 200.7] [SM 3120 B]	Thallium
Certified	Yes	NJ	WPP04.50100	NPW	ICP/MS	[EPA 200.8]	Thallium
Certified	Yes	NJ	WPP04.51100	NPW	Digestion, ICP	[EPA 200.7]	Tin
Applied	No	NJ	WPP04.51200	NPW	ICP/MS	[EPA 200.8]	Tin
Applied	No	NJ	WPP04.52050	NPW	Digestion, ICP	[EPA 200.7]	Titanium

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284 SHEFFIELD ST  
Mountainside, NJ 07092

Category: WPP05 – Organic Parameters, Chromatography

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	WPP05.01220	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Methylene chloride (Dichloromethane)
Applied	No	NJ	WPP05.01230	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Tetrachloroethane (1,1,2,2-)
Applied	No	NJ	WPP05.01240	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Tetrachloroethene
Applied	No	NJ	WPP05.01250	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Trichloroethane (1,1,1-)
Applied	No	NJ	WPP05.01260	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Trichloroethane (1,1,2-)
Applied	No	NJ	WPP05.01270	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Trichloroethene
Applied	No	NJ	WPP05.01280	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Trichlorofluoromethane
Applied	No	NJ	WPP05.01290	NPW	Purge & Trap, GC (HECD)	[EPA 601] [SM 6230 B]	Vinyl chloride
Applied	No	NJ	WPP05.02010	NPW	Purge & Trap, GC (PID)	[EPA 602] [SM 6220 B]	Benzene
Applied	No	NJ	WPP05.02030	NPW	Purge & Trap, GC (PID)	[EPA 602] [SM 6220 B]	Dichlorobenzene (1,2-)
Applied	No	NJ	WPP05.02040	NPW	Purge & Trap, GC (PID)	[EPA 602] [SM 6220 B]	Dichlorobenzene (1,3-)
Applied	No	NJ	WPP05.02050	NPW	Purge & Trap, GC (PID)	[EPA 602] [SM 6220 B]	Dichlorobenzene (1,4-)
Applied	No	NJ	WPP05.02060	NPW	Purge & Trap, GC (PID)	[EPA 602] [SM 6220 B]	Ethylbenzene
Applied	No	NJ	WPP05.02062	NPW	Purge & Trap, GC (PID)	[EPA 602]	Methyl tert-butyl ether
Applied	No	NJ	WPP05.02064	NPW	Purge & Trap, GC (PID)	[EPA 602]	Tert-butyl alcohol
Applied	No	NJ	WPP05.02070	NPW	Purge & Trap, GC (PID)	[EPA 602]	Toluene
Applied	No	NJ	WPP05.02080	NPW	Purge & Trap, GC (PID)	[EPA 602]	Xylenes (total)
Certified	Yes	NJ	WPP05.09010	NPW	Extract/GC (ECD)	[EPA 608]	Aldrin
Certified	Yes	NJ	WPP05.09020	NPW	Extract/GC (ECD)	[EPA 608]	Alpha BHC
Certified	Yes	NJ	WPP05.09030	NPW	Extract/GC (ECD)	[EPA 608]	Beta BHC
Certified	Yes	NJ	WPP05.09040	NPW	Extract/GC (ECD)	[EPA 608]	Delta BHC
Certified	Yes	NJ	WPP05.09050	NPW	Extract/GC (ECD)	[EPA 608]	Lindane (gamma BHC)
Certified	Yes	NJ	WPP05.09060	NPW	Extract/GC (ECD)	[EPA 608]	Chlordane
Applied	No	NJ	WPP05.09062	NPW	Extract/GC (ECD)	[EPA 608]	Chlordane (alpha)
Applied	No	NJ	WPP05.09063	NPW	Extract/GC (ECD)	[EPA 608]	Chlordane (gamma)
Certified	Yes	NJ	WPP05.09070	NPW	Extract/GC (ECD)	[EPA 608]	DDD (4,4'-)
Certified	Yes	NJ	WPP05.09080	NPW	Extract/GC (ECD)	[EPA 608]	DDE (4,4'-)
Certified	Yes	NJ	WPP05.09090	NPW	Extract/GC (ECD)	[EPA 608]	DDT (4,4'-)
Certified	Yes	NJ	WPP05.09100	NPW	Extract/GC (ECD)	[EPA 608]	Dieldrin
Certified	Yes	NJ	WPP05.09110	NPW	Extract/GC (ECD)	[EPA 608]	Endosulfan I
Certified	Yes	NJ	WPP05.09120	NPW	Extract/GC (ECD)	[EPA 608]	Endosulfan II
Certified	Yes	NJ	WPP05.09130	NPW	Extract/GC (ECD)	[EPA 608]	Endosulfan sulfate

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New Jersey Department of Environmental Protection  
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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100004  
284 SHEFFIELD ST  
Mountainside, NJ 07092

Category: WPP06 – Organic Parameters, Chromatography/MS

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	WPP06.02045	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Carbon disulfide
Certified	Yes	NJ	WPP06.02050	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Carbon tetrachloride
Certified	Yes	NJ	WPP06.02060	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Chlorobenzene
Certified	Yes	NJ	WPP06.02070	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Chloroethane
Certified	Yes	NJ	WPP06.02080	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Chloroethyl vinyl ether (2-)
Certified	Yes	NJ	WPP06.02090	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Chloroform
Certified	Yes	NJ	WPP06.02100	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Chloromethane
Applied	No	NJ	WPP06.02103	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Chlorotoluene (2-)
Applied	No	NJ	WPP06.02105	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Chlorotoluene (4-)
Applied	No	NJ	WPP06.02106	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Cyclohexanone
Applied	No	NJ	WPP06.02107	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Dibromo-3-chloropropane (1,2-)
Certified	Yes	NJ	WPP06.02110	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Dibromochloromethane
Applied	No	NJ	WPP06.02115	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Dibromomethane (1,2-) (EDB)
Applied	No	NJ	WPP06.02116	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Dibromomethane
Certified	Yes	NJ	WPP06.02120	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Dichlorobenzene (1,2-)
Certified	Yes	NJ	WPP06.02130	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Dichlorobenzene (1,3-)
Certified	Yes	NJ	WPP06.02140	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Dichlorobenzene (1,4-)
Applied	No	NJ	WPP06.02145	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Dichlorodifluoromethane
Certified	Yes	NJ	WPP06.02150	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Dichloroethane (1,1-)
Certified	Yes	NJ	WPP06.02160	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Dichloroethane (1,2-)
Certified	Yes	NJ	WPP06.02170	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Dichloroethene (1,1-)
Applied	No	NJ	WPP06.02175	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Dichloroethene (cis-1,2-)
Certified	Yes	NJ	WPP06.02180	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Dichloroethene (trans-1,2-)
Certified	Yes	NJ	WPP06.02190	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Dichloropropane (1,2-)
Applied	No	NJ	WPP06.02192	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Dichloropropane (1,3-)
Applied	No	NJ	WPP06.02194	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Dichloropropane (2,2-)
Applied	No	NJ	WPP06.02195	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Dichloropropene (1,1-)
Certified	Yes	NJ	WPP06.02200	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Dichloropropene (cis-1,3-)
Certified	Yes	NJ	WPP06.02210	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Dichloropropene (trans-1,3-)
Applied	No	NJ	WPP06.02212	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Ethyl acetate
Certified	Yes	NJ	WPP06.02220	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Ethylbenzene
Certified	Yes	NJ	WPP06.02230	NPW	GC/MS, P & T, Capillary Column	[EPA 624] [SM 6210 B]	Methylene chloride (Dichloromethane)

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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100004  
284 SHEFFIELD ST  
Mountainside, NJ 07092

Category: WPP06 – Organic Parameters, Chromatography/MS

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	WPP06.02650	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Trimethylbenzene (1,2,4-)
Applied	No	NJ	WPP06.02660	NPW	GC/MS, P & T, Capillary Column	[EPA 624]	Trimethylbenzene (1,3,5-)
Certified	Yes	NJ	WPP06.03010	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Acenaphthene
Certified	Yes	NJ	WPP06.03020	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Acenaphthylene
Certified	Yes	NJ	WPP06.03030	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Anthracene
Certified	Yes	NJ	WPP06.03040	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Benzo(a)anthracene
Certified	Yes	NJ	WPP06.03050	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Benzo(b)fluoranthene
Certified	Yes	NJ	WPP06.03060	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Benzo(k)fluoranthene
Certified	Yes	NJ	WPP06.03070	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Benzo(a)pyrene
Certified	Yes	NJ	WPP06.03080	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Benzo(ghi)perylene
Certified	Yes	NJ	WPP06.03090	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Butyl benzyl phthalate
Certified	Yes	NJ	WPP06.03100	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Bis (2-chloroethyl) ether
Certified	Yes	NJ	WPP06.03110	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Bis (2-chloroethoxy) methane
Certified	Yes	NJ	WPP06.03120	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Bis (2-ethylhexyl) phthalate
Certified	Yes	NJ	WPP06.03130	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Bis (2-chloroisopropyl) ether
Certified	Yes	NJ	WPP06.03140	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Bromophenyl-phenyl ether (4-)
Certified	Yes	NJ	WPP06.03150	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Chloronaphthalene (2-)
Certified	Yes	NJ	WPP06.03160	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Chlorophenyl-phenyl ether (4-)
Certified	Yes	NJ	WPP06.03170	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Chrysene
Certified	Yes	NJ	WPP06.03180	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Dibenzo(a,h)anthracene
Applied	No	NJ	WPP06.03186	NPW	Extract, GC/MS	[EPA 625]	Dibenzofuran
Certified	Yes	NJ	WPP06.03190	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Di-n-butyl phthalate
Certified	Yes	NJ	WPP06.03230	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Dichlorobenzidine (3,3'-)
Certified	Yes	NJ	WPP06.03240	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Diethyl phthalate
Certified	Yes	NJ	WPP06.03250	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Dimethyl phthalate
Certified	Yes	NJ	WPP06.03260	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Dinitrotoluene (2,4-)
Certified	Yes	NJ	WPP06.03270	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Dinitrotoluene (2,6-)
Certified	Yes	NJ	WPP06.03280	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Di-n-octyl phthalate
Certified	Yes	NJ	WPP06.03290	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Fluoranthene
Certified	Yes	NJ	WPP06.03300	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Fluorene
Certified	Yes	NJ	WPP06.03310	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Hexachlorobenzene
Certified	Yes	NJ	WPP06.03320	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Hexachlorobutadiene (1,3-)

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Laboratory Name: **CHEMTECH** Laboratory Number: **20012** Activity ID: **NLC100004**  
**284 SHEFFIELD ST**  
**Mountainside, NJ 07092**

**Category: WPP06 – Organic Parameters, Chromatography/MS**

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	WPP06.03570	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Aniline
Certified	Yes	NJ	WPP06.03580	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Benzidine
Certified	Yes	NJ	WPP06.03590	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Carbazole
Certified	Yes	NJ	WPP06.03600	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Dichloroaniline (2,3-)
Applied	No	NJ	WPP06.03605	NPW	Extract, GC/MS	[EPA 625]	Diphenylhydrazine (1,2-)
Certified	Yes	NJ	WPP06.03610	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Methylphenol (2-)
Applied	No	NJ	WPP06.03612	NPW	Extract, GC/MS	[EPA 625]	Methylphenol (3-)
Certified	Yes	NJ	WPP06.03620	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Decane (n-)
Certified	Yes	NJ	WPP06.03630	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Docosane (n-)
Certified	Yes	NJ	WPP06.03640	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Dodecane (n-)
Certified	Yes	NJ	WPP06.03650	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Eicosane (n-)
Certified	Yes	NJ	WPP06.03660	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Hexachlorocyclopentadiene
Certified	Yes	NJ	WPP06.03670	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Hexadecane (n-)
Certified	Yes	NJ	WPP06.03680	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	N-Nitrosodimethylamine
Certified	Yes	NJ	WPP06.03690	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	N-Nitrosodiphenylamine
Certified	Yes	NJ	WPP06.03700	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Octadecane (n-)
Certified	Yes	NJ	WPP06.03710	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Tetradecane (n-)
Certified	Yes	NJ	WPP06.03720	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Pyridine
Certified	Yes	NJ	WPP06.03730	NPW	Extract, GC/MS	[EPA 625] [SM 6410 B]	Methylphenanthrene (1-)

**Category: CLP01 – Multi-Media, Multi-Conc. Inorganics**

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	CLP01.03003	NPW, SCM	ICP	[EPA ILM05.4]	Aluminum
Applied	No	NJ	CLP01.03004	NPW, SCM	ICP	[EPA ISM01.2]	Aluminum
Certified	Yes	NJ	CLP01.06003	NPW, SCM	ICP	[EPA ILM05.4]	Antimony
Applied	No	NJ	CLP01.06004	NPW, SCM	ICP	[EPA ISM01.2]	Antimony
Applied	No	NJ	CLP01.06103	NPW, SCM	ICP/MS	[EPA ISM01.2]	Antimony
Certified	Yes	NJ	CLP01.08003	NPW, SCM	ICP	[EPA ILM05.4]	Arsenic
Applied	No	NJ	CLP01.08004	NPW, SCM	ICP	[EPA ISM01.2]	Arsenic

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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100004  
284 SHEFFIELD ST  
Mountainside, NJ 07092

Category: CLP01 -- Multi-Media, Multi-Conc. Inorganics

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	CLP01.42103	NPW, SCM	CVAA, Manual	[EPA ISM01.2]	Mercury
Applied	No	NJ	CLP01.43103	NPW, SCM	CVAA, Automated	[EPA ISM01.2]	Mercury
Certified	Yes	NJ	CLP01.47003	NPW, SCM	ICP	[EPA ILM05.4]	Nickel
Applied	No	NJ	CLP01.47004	NPW, SCM	ICP	[EPA ISM01.2]	Nickel
Applied	No	NJ	CLP01.47103	NPW, SCM	ICP/MS	[EPA ISM01.2]	Nickel
Certified	Yes	NJ	CLP01.49003	NPW, SCM	ICP	[EPA ILM05.4]	Potassium
Applied	No	NJ	CLP01.49004	NPW, SCM	ICP	[EPA ISM01.2]	Potassium
Certified	Yes	NJ	CLP01.51003	NPW, SCM	ICP	[EPA ILM05.4]	Selenium
Applied	No	NJ	CLP01.51004	NPW, SCM	ICP	[EPA ISM01.2]	Selenium
Applied	No	NJ	CLP01.51103	NPW, SCM	ICP/MS	[EPA ISM01.2]	Selenium
Certified	Yes	NJ	CLP01.54003	NPW, SCM	ICP	[EPA ILM05.4]	Silver
Applied	No	NJ	CLP01.54004	NPW, SCM	ICP	[EPA ISM01.2]	Silver
Applied	No	NJ	CLP01.54103	NPW, SCM	ICP/MS	[EPA ISM01.2]	Silver
Certified	Yes	NJ	CLP01.56003	NPW, SCM	ICP	[EPA ILM05.4]	Sodium
Applied	No	NJ	CLP01.56004	NPW, SCM	ICP	[EPA ISM01.2]	Sodium
Certified	Yes	NJ	CLP01.59003	NPW, SCM	ICP	[EPA ILM05.4]	Thallium
Applied	No	NJ	CLP01.59004	NPW, SCM	ICP	[EPA ISM01.2]	Thallium
Applied	No	NJ	CLP01.59103	NPW, SCM	ICP/MS	[EPA ISM01.2]	Thallium
Certified	Yes	NJ	CLP01.63003	NPW, SCM	ICP	[EPA ILM05.4]	Vanadium
Applied	No	NJ	CLP01.63004	NPW, SCM	ICP	[EPA ISM01.2]	Vanadium
Applied	No	NJ	CLP01.63103	NPW, SCM	ICP/MS	[EPA ISM01.2]	Vanadium
Certified	Yes	NJ	CLP01.66003	NPW, SCM	ICP	[EPA ILM05.4]	Zinc
Applied	No	NJ	CLP01.66004	NPW, SCM	ICP	[EPA ISM01.2]	Zinc
Applied	No	NJ	CLP01.66103	NPW, SCM	ICP/MS	[EPA ISM01.2]	Zinc
Applied	No	NJ	CLP01.67103	NPW, SCM	Micro Distillation, Spectrophotometric	[EPA ISM01.2]	Cyanide, Total in Water and Soil / Sediments
Certified	Yes	NJ	CLP01.69102	NPW, SCM	Midi Distillation, Spectrophotometric	[EPA ILM05.4]	Cyanide, Total in Water and Soil / Sediments
Applied	No	NJ	CLP01.69103	NPW, SCM	Midi Distillation, Spectrophotometric	[EPA ISM01.2]	Cyanide, Total in Water and Soil / Sediments

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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100004  
284 SHEFFIELD ST  
Mountainside, NJ 07092

Category: CLP02 – Multi-Media, Multi-Conc. Organics

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	CLP02.03033	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Chlorobenzene
Certified	Yes	NJ	CLP02.03043	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dichlorobenzene (1,2-)
Certified	Yes	NJ	CLP02.03053	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dichlorobenzene (1,3-)
Certified	Yes	NJ	CLP02.03063	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dichlorobenzene (1,4-)
Certified	Yes	NJ	CLP02.03067	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dioxane (1,4-)
Certified	Yes	NJ	CLP02.03073	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Ethylbenzene
Certified	Yes	NJ	CLP02.03083	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Isopropylbenzene
Certified	Yes	NJ	CLP02.03089	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Trichlorobenzene (1,2,3-)
Certified	Yes	NJ	CLP02.03093	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Trichlorobenzene (1,2,4-)
Certified	Yes	NJ	CLP02.03103	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Styrene
Certified	Yes	NJ	CLP02.03113	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Toluene
Certified	Yes	NJ	CLP02.03117	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Xylene (m- + p-)
Certified	Yes	NJ	CLP02.03119	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Xylene (o-)
Certified	Yes	NJ	CLP02.03143	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Bromodichloromethane
Certified	Yes	NJ	CLP02.03153	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Bromoform
Certified	Yes	NJ	CLP02.03163	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Bromomethane
Certified	Yes	NJ	CLP02.03173	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Carbon tetrachloride
Certified	Yes	NJ	CLP02.03183	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Chloroethane
Certified	Yes	NJ	CLP02.03193	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Chloroform
Certified	Yes	NJ	CLP02.03203	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Chloromethane
Certified	Yes	NJ	CLP02.03213	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dichloropropene (trans-1,3-)
Certified	Yes	NJ	CLP02.03223	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dibromoethane (1,2-) (EDB)
Certified	Yes	NJ	CLP02.03233	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dibromochloromethane
Certified	Yes	NJ	CLP02.03243	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dibromo-3-chloropropane (1,2-)
Certified	Yes	NJ	CLP02.03253	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dichlorodifluoromethane
Certified	Yes	NJ	CLP02.03263	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dichloroethane (1,1-)
Certified	Yes	NJ	CLP02.03273	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dichloroethane (1,2-)
Certified	Yes	NJ	CLP02.03283	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dichloroethene (1,1-)
Certified	Yes	NJ	CLP02.03293	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dichloroethene (trans-1,2-)
Certified	Yes	NJ	CLP02.03303	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dichloroethene (cis-1,2-)
Certified	Yes	NJ	CLP02.03313	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dichloropropane (1,2-)
Certified	Yes	NJ	CLP02.03323	NPW, SCM	GC/MS/SIM, P & T, Capillary	[EPA SOM01.2 (4/2007)]	Dichloropropene (cis-1,3-)

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**ANNUAL CERTIFIED PARAMETER LIST AND CURRENT STATUS**  
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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100004  
284 SHEFFIELD ST  
Mountainside, NJ 07092

Category: CLP02 – Multi-Media, Multi-Conc. Organics

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	CLP02.04183	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Bis (2-chloroethoxy) methane
Certified	Yes	NJ	CLP02.04193	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Bis (2-chloroisopropyl) ether
Certified	Yes	NJ	CLP02.04203	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Bis (2-chloroethyl) ether
Certified	Yes	NJ	CLP02.04213	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Chlorophenyl-phenyl ether (4-)
Certified	Yes	NJ	CLP02.04223	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Bromophenyl-phenyl ether (4-)
Certified	Yes	NJ	CLP02.04233	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Nitroaromatics and isophorone
Certified	Yes	NJ	CLP02.04243	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Dinitrotoluene (2,4-)
Certified	Yes	NJ	CLP02.04253	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Dinitrotoluene (2,6-)
Certified	Yes	NJ	CLP02.04263	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Isophorone
Certified	Yes	NJ	CLP02.04273	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Nitrobenzene
Certified	Yes	NJ	CLP02.04293	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Butyl benzyl phthalate
Certified	Yes	NJ	CLP02.04303	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Bis (2-ethylhexyl) phthalate
Certified	Yes	NJ	CLP02.04313	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Diethyl phthalate
Certified	Yes	NJ	CLP02.04323	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Dimethyl phthalate
Certified	Yes	NJ	CLP02.04333	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Di-n-butyl phthalate
Certified	Yes	NJ	CLP02.04343	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Di-n-octyl phthalate
Certified	Yes	NJ	CLP02.04363	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Acenaphthene
Certified	Yes	NJ	CLP02.04373	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Anthracene
Certified	Yes	NJ	CLP02.04383	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Acenaphthylene
Certified	Yes	NJ	CLP02.04393	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Benzo(a)anthracene
Certified	Yes	NJ	CLP02.04403	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Benzo(a)pyrene
Certified	Yes	NJ	CLP02.04413	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Benzo(b)fluoranthene
Certified	Yes	NJ	CLP02.04423	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Benzo(ghi)perylene
Certified	Yes	NJ	CLP02.04433	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Benzo(k)fluoranthene
Certified	Yes	NJ	CLP02.04443	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Chrysene
Certified	Yes	NJ	CLP02.04453	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Dibenzo(a,h)anthracene
Certified	Yes	NJ	CLP02.04463	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Fluoranthene
Certified	Yes	NJ	CLP02.04473	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Fluorene
Certified	Yes	NJ	CLP02.04483	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Indeno(1,2,3-cd)pyrene
Certified	Yes	NJ	CLP02.04493	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Methylnaphthalene (2-)
Certified	Yes	NJ	CLP02.04503	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Naphthalene
Certified	Yes	NJ	CLP02.04513	NPW, SCM	Extraction, GC/MS/SIM, Capillary	[EPA SOM01.2 (4/2007)]	Phenanthrene

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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100004  
284 SHEFFIELD ST  
Mountainside, NJ 07092

Category: SHW02 – Characteristics of Hazardous Waste

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW02.06950	NPW, SCM	TCLP, Toxicity Procedure, Shaker	[SW-846 1311]	Semivolatile organics
Certified	Yes	NJ	SHW02.07000	NPW, SCM	TCLP, Toxicity Procedure, Shaker	[SW-846 1311]	Metals
Certified	Yes	NJ	SHW02.08000	NPW, SCM	Synthetic PPT Leachate Procedure	[SW-846 1312]	Metals - organics
Applied	No	NJ	SHW02.09000	NPW, SCM	Multiple Extractions	[SW-846 1320]	Metals - organics

Category: SHW03 – Analyze-Immediately Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW03.01000	NPW, SCM	Aqueous, Electrometric	[SW-846 9040B]	pH

Category: SHW04 – Inorganic Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	SHW04.02100	NPW, SCM	Acid Digestion For GFAA, Micro asst Aqueous	[SW-846 3015] [SW-846 3015A]	Metals
Applied	No	NJ	SHW04.03500	NPW, SCM	Microwave Acid Digest: Soil Sediment & Sludge	[SW-846 3051] [SW-846 3051A]	Metals
Certified	Yes	NJ	SHW04.05000	NPW, SCM	ICP	[SW-846 6010B]	Aluminum
Certified	Yes	NJ	SHW04.05500	NPW, SCM	ICP/MS	[SW-846 6020]	Aluminum
Certified	Yes	NJ	SHW04.06500	NPW, SCM	ICP	[SW-846 6010B]	Antimony
Certified	Yes	NJ	SHW04.07000	NPW, SCM	ICP/MS	[SW-846 6020]	Antimony
Certified	Yes	NJ	SHW04.09000	NPW, SCM	ICP	[SW-846 6010B]	Arsenic
Certified	Yes	NJ	SHW04.09500	NPW, SCM	ICP/MS	[SW-846 6020]	Arsenic
Certified	Yes	NJ	SHW04.11500	NPW, SCM	ICP	[SW-846 6010B]	Barium
Certified	Yes	NJ	SHW04.12000	NPW, SCM	ICP/MS	[SW-846 6020]	Barium
Certified	Yes	NJ	SHW04.13500	NPW, SCM	ICP	[SW-846 6010B]	Beryllium
Certified	Yes	NJ	SHW04.14000	NPW, SCM	ICP/MS	[SW-846 6020]	Beryllium
Certified	Yes	NJ	SHW04.15100	NPW, SCM	ICP	[SW-846 6010B]	Boron
Applied	No	NJ	SHW04.15101	NPW, SCM	ICP/MS	[SW-846 6020] [SW-846 6020A]	Boron
Certified	Yes	NJ	SHW04.15500	NPW, SCM	ICP	[SW-846 6010B]	Cadmium
Certified	Yes	NJ	SHW04.16000	NPW, SCM	ICP/MS	[SW-846 6020]	Cadmium

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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100004  
284 SHEFFIELD ST  
Mountainside, NJ 07092

Category: SHW04 – Inorganic Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW04.45000	NPW, SCM	ICP	[SW-846 6010B]	Thallium
Certified	Yes	NJ	SHW04.45500	NPW, SCM	ICP/MS	[SW-846 6020]	Thallium
Certified	Yes	NJ	SHW04.47100	NPW, SCM	ICP	[SW-846 6010B]	Tin
Applied	No	NJ	SHW04.47105	NPW, SCM	ICP/MS	[SW-846 6020] [SW-846 6020A]	Tin
Applied	No	NJ	SHW04.47145	NPW, SCM	ICP	[SW-846 6010B] [SW-846 6010C]	Titanium
Applied	No	NJ	SHW04.47150	NPW, SCM	ICP/MS	[SW-846 6020] [SW-846 6020A]	Titanium
Applied	No	NJ	SHW04.47170	NPW, SCM	ICP/MS	[SW-846 6020] [SW-846 6020A]	Tungsten
Applied	No	NJ	SHW04.47300	NPW, SCM	ICP/MS	[SW-846 6020]	Uranium
Certified	Yes	NJ	SHW04.47500	NPW, SCM	ICP	[SW-846 6010B]	Vanadium
Certified	Yes	NJ	SHW04.47505	NPW, SCM	ICP/MS	[SW-846 6020]	Vanadium
Certified	Yes	NJ	SHW04.49000	NPW, SCM	ICP	[SW-846 6010B]	Zinc
Certified	Yes	NJ	SHW04.49500	NPW, SCM	ICP/MS	[SW-846 6020]	Zinc
Applied	No	NJ	SHW04.51050	NPW, SCM	ICP/MS	[SW-846 6020] [SW-846 6020A]	Zirconium

Category: SHW06 – Organic Parameters, Chromatography

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	SHW06.02010	NPW, SCM	Microextraction, GC, ECD	[SW-846 8011]	Dibromoethane (1,2-) (EDB)
Applied	No	NJ	SHW06.02020	NPW, SCM	Microextraction, GC, ECD	[SW-846 8011]	Dibromo-3-chloropropane (1,2-)
Applied	No	NJ	SHW06.02030	NPW, SCM	Microextraction, GC, ECD	[SW-846 8011]	Trichloropropane (1,2,3-)
Certified	Yes	NJ	SHW06.03010	NPW, SCM	GC, Direct Injection or P & T, FID	[SW-846 8015B]	Acetone
Certified	Yes	NJ	SHW06.03020	NPW, SCM	GC, Direct Injection or P & T, FID	[SW-846 8015B]	Acetonitrile
Certified	Yes	NJ	SHW06.03030	NPW, SCM	GC, Direct Injection or P & T, FID	[SW-846 8015B]	Acrolein
Certified	Yes	NJ	SHW06.03040	NPW, SCM	GC, Direct Injection or P & T, FID	[SW-846 8015B]	Allyl alcohol
Certified	Yes	NJ	SHW06.03050	NPW, SCM	GC, Direct Injection or P & T, FID	[SW-846 8015B]	Tert-butyl alcohol
Certified	Yes	NJ	SHW06.03060	NPW, SCM	GC, Direct Injection or P & T, FID	[SW-846 8015B]	Crotonaldehyde
Certified	Yes	NJ	SHW06.03070	NPW, SCM	GC, Direct Injection or P & T, FID	[SW-846 8015B]	Dioxane (1,4-)
Certified	Yes	NJ	SHW06.03080	NPW, SCM	GC, Direct Injection, FID	[SW-846 8015B]	Ethylene Oxide
Certified	Yes	NJ	SHW06.03090	NPW, SCM	GC, Direct Injection or P & T, FID	[SW-846 8015B]	Iso-butyl alcohol
Certified	Yes	NJ	SHW06.03100	NPW, SCM	GC, Direct Injection or P & T, FID	[SW-846 8015B]	Methyl ethyl ketone

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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100004  
284 SHEFFIELD ST  
Mountainside, NJ 07092

Category: SHW06 – Organic Parameters, Chromatography

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	SHW06.05200	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B]	Dichlorodifluoromethane
Applied	No	NJ	SHW06.05210	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B]	Dichloroethane (1,1-)
Applied	No	NJ	SHW06.05220	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B]	Dichloroethane (1,2-)
Applied	No	NJ	SHW06.05230	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B]	Dichloroethene (1,1-)
Applied	No	NJ	SHW06.05240	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B]	Dichloroethene (cis-1,2-)
Applied	No	NJ	SHW06.05250	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B]	Dichloroethene (trans-1,2-)
Applied	No	NJ	SHW06.05260	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B]	Dichloropropane (1,2-)
Applied	No	NJ	SHW06.05270	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B]	Dichloropropene (cis-1,3-)
Applied	No	NJ	SHW06.05280	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B]	Methylene chloride (Dichloromethane)
Applied	No	NJ	SHW06.05290	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B]	Tetrachloroethane (1,1,2,2-)
Applied	No	NJ	SHW06.05300	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B]	Tetrachloroethene
Applied	No	NJ	SHW06.05310	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B]	Trichloroethane (1,1,1-)
Applied	No	NJ	SHW06.05320	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B]	Trichloroethane (1,1,2-)
Applied	No	NJ	SHW06.05330	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B]	Trichloroethene
Applied	No	NJ	SHW06.05340	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B]	Trichlorofluoromethane
Applied	No	NJ	SHW06.05350	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B]	Vinyl chloride
Applied	No	NJ	SHW06.05360	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B]	Methyl tert-butyl ether
Applied	No	NJ	SHW06.05370	NPW, SCM	GC, Direct Injection or P & T, PID-HECD	[SW-846 8021B]	Chloroethyl vinyl ether (2-)
Certified	Yes	NJ	SHW06.12010	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	Aldrin
Certified	Yes	NJ	SHW06.12020	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	Alpha BHC
Certified	Yes	NJ	SHW06.12030	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	Beta BHC
Certified	Yes	NJ	SHW06.12040	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	Delta BHC
Certified	Yes	NJ	SHW06.12050	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	Lindane (gamma BHC)
Certified	Yes	NJ	SHW06.12060	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	Chlordane (technical)
Certified	Yes	NJ	SHW06.12070	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	Chlordane (alpha)
Certified	Yes	NJ	SHW06.12080	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	Chlordane (gamma)
Certified	Yes	NJ	SHW06.12090	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	DDD (4,4'-)
Certified	Yes	NJ	SHW06.12100	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	DDE (4,4'-)
Certified	Yes	NJ	SHW06.12110	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	DDT (4,4'-)
Certified	Yes	NJ	SHW06.12120	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	Dieldrin
Certified	Yes	NJ	SHW06.12130	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	Endosulfan I
Certified	Yes	NJ	SHW06.12140	NPW, SCM	GC, Extraction, ECD or HECD, Capillary	[SW-846 8081A]	Endosulfan II

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Laboratory Name: **CHEMTECH** Laboratory Number: **20012** Activity ID: **NLC100004**  
284 SHEFFIELD ST  
Mountainside, NJ 07092

Category: **SHW06 – Organic Parameters, Chromatography**

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	SHW06.23041	NPW, SCM	GC, Extraction, ECD, Capillary	[SW-846.8151A]	DB (2,4-)
Certified	Yes	NJ	SHW06.23050	NPW, SCM	GC, Extraction, ECD, Capillary	[SW-846.8151A]	T (2,4,5-)
Certified	Yes	NJ	SHW06.23060	NPW, SCM	GC, Extraction, ECD, Capillary	[SW-846.8151A]	TP (2,4,5-) (Silvex)
Applied	No	NJ	SHW06.23061	NPW, SCM	GC, Extraction, ECD, Capillary	[SW-846.8151A]	Dichlorobenzoic acid (3,5-)
Applied	No	NJ	SHW06.23062	NPW, SCM	GC, Extraction, ECD, Capillary	[SW-846.8151A]	Hydroxydicamba (5-)
Applied	No	NJ	SHW06.23063	NPW, SCM	GC, Extraction, ECD, Capillary	[SW-846.8151A]	MCPA
Applied	No	NJ	SHW06.23064	NPW, SCM	GC, Extraction, ECD, Capillary	[SW-846.8151A]	MCPP
Applied	No	NJ	SHW06.23065	NPW, SCM	GC, Extraction, ECD, Capillary	[SW-846.8151A]	Nitrophenol (4-)
Applied	No	NJ	SHW06.23066	NPW, SCM	GC, Extraction, ECD, Capillary	[SW-846.8151A]	Pentachlorophenol
Certified	Yes	NJ	SHW06.23070	NPW, SCM	GC, Extraction, ECD, Capillary	[SW-846.8151A]	Picloram
Applied	No	NJ	SHW06.23100	NPW, SCM	GC, Headspace, FID	[OTHER J. Chrom. Sci. RSK-175]	Ethane
Applied	No	NJ	SHW06.23105	NPW, SCM	GC, Headspace, FID	[OTHER J. Chrom. Sci. RSK-175]	Ethene
Applied	No	NJ	SHW06.23110	NPW, SCM	GC, Headspace, FID	[OTHER J. Chrom. Sci. RSK-175]	Methane
Applied	No	NJ	SHW06.24110	NPW, SCM	Extraction, HPLC	[SW-846.8310]	Acenaphthene
Applied	No	NJ	SHW06.24120	NPW, SCM	Extraction, HPLC	[SW-846.8310]	Acenaphthylene
Applied	No	NJ	SHW06.24130	NPW, SCM	Extraction, HPLC	[SW-846.8310]	Anthracene
Applied	No	NJ	SHW06.24140	NPW, SCM	Extraction, HPLC	[SW-846.8310]	Benzo(a)anthracene
Applied	No	NJ	SHW06.24150	NPW, SCM	Extraction, HPLC	[SW-846.8310]	Benzo(a)pyrene
Applied	No	NJ	SHW06.24160	NPW, SCM	Extraction, HPLC	[SW-846.8310]	Benzo(b)fluoranthene
Applied	No	NJ	SHW06.24170	NPW, SCM	Extraction, HPLC	[SW-846.8310]	Benzo(ghi)perylene
Applied	No	NJ	SHW06.24180	NPW, SCM	Extraction, HPLC	[SW-846.8310]	Benzo(k)fluoranthene
Applied	No	NJ	SHW06.24190	NPW, SCM	Extraction, HPLC	[SW-846.8310]	Chrysene
Applied	No	NJ	SHW06.24200	NPW, SCM	Extraction, HPLC	[SW-846.8310]	Dibenzo(a,h)anthracene
Applied	No	NJ	SHW06.24210	NPW, SCM	Extraction, HPLC	[SW-846.8310]	Fluoranthene
Applied	No	NJ	SHW06.24220	NPW, SCM	Extraction, HPLC	[SW-846.8310]	Fluorene
Applied	No	NJ	SHW06.24230	NPW, SCM	Extraction, HPLC	[SW-846.8310]	Indeno(1,2,3-cd)pyrene
Applied	No	NJ	SHW06.24240	NPW, SCM	Extraction, HPLC	[SW-846.8310]	Naphthalene
Applied	No	NJ	SHW06.24250	NPW, SCM	Extraction, HPLC	[SW-846.8310]	Phenanthrene
Applied	No	NJ	SHW06.24260	NPW, SCM	Extraction, HPLC	[SW-846.8310]	Pyrene
Certified	Yes	NJ	SHW06.28010	NPW, SCM	HPLC, UV Detector	[SW-846.8330]	HMX
Certified	Yes	NJ	SHW06.28020	NPW, SCM	HPLC, UV Detector	[SW-846.8330]	RDX
Certified	Yes	NJ	SHW06.28030	NPW, SCM	HPLC, UV Detector	[SW-846.8330]	Trinitrobenzene (1,3,5-)

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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100004  
284 SHEFFIELD ST  
Mountainside, NJ 07092

Category: SHW07 – Organic Parameters, Chromatography/MS

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW07.04060	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Ethylbenzene
Applied	No	NJ	SHW07.04065	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Isopropylbenzene
Applied	No	NJ	SHW07.04067	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Propylbenzene (n-)
Certified	Yes	NJ	SHW07.04070	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Toluene
Applied	No	NJ	SHW07.04071	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Isopropyltoluene (4-)
Applied	No	NJ	SHW07.04072	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Trichlorobenzene (1,2,3-)
Applied	No	NJ	SHW07.04073	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Trimethylbenzene (1,2,4-)
Applied	No	NJ	SHW07.04074	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Trimethylbenzene (1,3,5-)
Applied	No	NJ	SHW07.04075	NPW, SCM	GC/MS, P&T, or Direct Injection, Capillary	[SW-846 8260C] [SW-846 8260B]	Trimethylbenzene (1,2,3-)
Certified	Yes	NJ	SHW07.04080	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Xylenes (total)
Applied	No	NJ	SHW07.04081	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Xylene (m-)
Applied	No	NJ	SHW07.04082	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Xylene (o-)
Applied	No	NJ	SHW07.04083	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Xylene (p-)
Applied	No	NJ	SHW07.04089	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Bromochloromethane
Certified	Yes	NJ	SHW07.04090	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Bromodichloromethane
Applied	No	NJ	SHW07.04095	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Bromoethane
Certified	Yes	NJ	SHW07.04100	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Bromoforn
Certified	Yes	NJ	SHW07.04110	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Bromomethane
Applied	No	NJ	SHW07.04111	NPW, SCM	GC/MS, P&T, or Direct Injection, Capillary	[SW-846 8260C] [SW-846 8260B]	Cyclohexane
Certified	Yes	NJ	SHW07.04120	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Carbon tetrachloride
Certified	Yes	NJ	SHW07.04130	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Chloroethane
Certified	Yes	NJ	SHW07.04140	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Chloroethyl vinyl ether (2-)
Certified	Yes	NJ	SHW07.04150	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Chloroform
Certified	Yes	NJ	SHW07.04160	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Chloromethane
Certified	Yes	NJ	SHW07.04170	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Dichloropropene (trans-1,3-)
Certified	Yes	NJ	SHW07.04180	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Dibromochloromethane
Certified	Yes	NJ	SHW07.04185	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Dibromoethane (1,2-) (EDB)
Applied	No	NJ	SHW07.04186	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Dibromomethane
Certified	Yes	NJ	SHW07.04187	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Dibromo-3-chloropropane (1,2-)
Certified	Yes	NJ	SHW07.04190	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Dichlorodifluoromethane
Certified	Yes	NJ	SHW07.04200	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Dichloroethane (1,1-)
Certified	Yes	NJ	SHW07.04210	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Dichloroethane (1,2-)

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284 SHEFFIELD ST  
Mountainside, NJ 07092

Category: SHW07 – Organic Parameters, Chromatography/MS

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Certified	Yes	NJ	SHW07.04530	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846.8260B]	Hexachloroethane
Applied	No	NJ	SHW07.04535	NPW, SCM	GC/MS, P&T, or Direct Injection, Capillary	[SW-846 8260C] [SW-846 8260B]	Methylcyclohexane
Certified	Yes	NJ	SHW07.04540	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Naphthalene
Certified	Yes	NJ	SHW07.04550	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Styrene
Certified	Yes	NJ	SHW07.04560	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Tetrachloroethane (1,1,1,2-)
Certified	Yes	NJ	SHW07.04570	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Trichlorobenzene (1,2,4-)
Applied	No	NJ	SHW07.04572	NPW, SCM	GC/MS, Extract, or Direct Injection, Capillary	[SW-846 8260B]	Trimethylpentane (2,2,4-)
Certified	Yes	NJ	SHW07.04580	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B]	Nitrobenzene
Applied	No	NJ	SHW07.04590	NPW, SCM	GC/MS, P & T or Direct Injection, Capillary	[SW-846 8260B] [SW-846 8260C]	Dioxane (1,4-)
Applied	No	NJ	SHW07.04665	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C] [SW-846 8270D]	Acetophenone
Applied	No	NJ	SHW07.04702	NPW, SCM	GC/MS, Extract, or Direct Injection, Capillary	[SW-846 8270C]	Biphenyl (1,1'-)
Applied	No	NJ	SHW07.04975	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C] [SW-846 8270D]	Tetrachlorobenzene (1,2,4,5-)
Applied	No	NJ	SHW07.04980	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C] [SW-846 8270D]	Tetrachlorophenol (2,3,4,6-)
Applied	No	NJ	SHW07.05005	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C] [SW-846 8270D]	N-Nitrosodimethylamine
Certified	Yes	NJ	SHW07.05006	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	N-Nitroso-di-n-propylamine
Certified	Yes	NJ	SHW07.05010	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	N-Nitrosodiphenylamine
Certified	Yes	NJ	SHW07.05020	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Diphenylamine
Certified	Yes	NJ	SHW07.05030	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Carbazole
Certified	Yes	NJ	SHW07.05038	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Benzidine
Certified	Yes	NJ	SHW07.05040	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Dichlorobenzidine (3,3'-)
Applied	No	NJ	SHW07.05045	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C] [SW-846 8270D]	Diphenylhydrazine (1,2-)
Certified	Yes	NJ	SHW07.05048	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Aniline
Certified	Yes	NJ	SHW07.05050	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Chloraniline (4-)
Certified	Yes	NJ	SHW07.05060	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Nitroaniline (2-)
Certified	Yes	NJ	SHW07.05062	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Nitroaniline (3-)
Certified	Yes	NJ	SHW07.05063	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Nitroaniline (4-)
Certified	Yes	NJ	SHW07.05070	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Chloronaphthalene (2-)
Certified	Yes	NJ	SHW07.05080	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Hexachlorobenzene
Certified	Yes	NJ	SHW07.05090	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Hexachlorobutadiene (1,3-)
Certified	Yes	NJ	SHW07.05100	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Hexachlorocyclopentadiene
Certified	Yes	NJ	SHW07.05110	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Hexachloroethane
Certified	Yes	NJ	SHW07.05120	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Trichlorobenzene (1,2,4-)

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Laboratory Name: CHEMTECH Laboratory Number: 20012 Activity ID: NLC100004  
284 SHEFFIELD ST  
Mountainside, NJ 07092

Category: SHW07 – Organic Parameters, Chromatography/MS

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW07.05440	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Methyl phenol (4-chloro-3-)
Certified	Yes	NJ	SHW07.05450	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Chlorophenol (2-)
Certified	Yes	NJ	SHW07.05460	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Dichlorophenol (2,4-)
Certified	Yes	NJ	SHW07.05470	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Dimethylphenol (2,4-)
Certified	Yes	NJ	SHW07.05480	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Dinitrophenol (2,4-)
Certified	Yes	NJ	SHW07.05490	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Dinitrophenol (2-methyl-4,6-)
Certified	Yes	NJ	SHW07.05500	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Methylphenol (2-)
Certified	Yes	NJ	SHW07.05510	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Methylphenol (4-)
Certified	Yes	NJ	SHW07.05520	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Nitrophenol (2-)
Certified	Yes	NJ	SHW07.05530	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Nitrophenol (4-)
Certified	Yes	NJ	SHW07.05540	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Pentachlorophenol
Certified	Yes	NJ	SHW07.05550	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Phenol
Certified	Yes	NJ	SHW07.05560	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Trichlorophenol (2,4,5-)
Certified	Yes	NJ	SHW07.05570	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Trichlorophenol (2,4,6-)
Certified	Yes	NJ	SHW07.05590	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Methylphenol (3-)
Certified	Yes	NJ	SHW07.05600	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Dibenzofuran
Certified	Yes	NJ	SHW07.05691	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Dichlorobenzene (1,2-)
Certified	Yes	NJ	SHW07.05692	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Dichlorobenzene (1,3-)
Certified	Yes	NJ	SHW07.05700	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Dichlorobenzene (1,4-)
Applied	No	NJ	SHW07.05705	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Benzaldehyde
Applied	No	NJ	SHW07.05710	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C] [SW-846 8270D]	Benzoic acid
Applied	No	NJ	SHW07.05720	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C] [SW-846 8270D]	Benzyl alcohol
Applied	No	NJ	SHW07.05740	NPW, SCM	Extraction, SIM, GC/MS	[ASTM D5739-00]	Petroleum Organics
Certified	Yes	NJ	SHW07.05750	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Pyridine
Applied	No	NJ	SHW07.05765	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Caprolactam
Applied	No	NJ	SHW07.05990	NPW, SCM	GC/MS, Extract or Dir Inj, Capillary	[SW-846 8270C]	Atrazine
Applied	No	NJ	SHW07.07584	NPW, SCM	GC/MS/SIM, Extract or Dir Inj, Capillary	[SW-846 8270C]	Benzo(a)anthracene
Applied	No	NJ	SHW07.07586	NPW, SCM	GC/MS/SIM, Extract or Dir Inj, Capillary	[SW-846 8270C]	Benzo(a)pyrene
Applied	No	NJ	SHW07.07588	NPW, SCM	GC/MS/SIM, Extract or Dir Inj, Capillary	[SW-846 8270C]	Benzo(b)fluoranthene
Applied	No	NJ	SHW07.07590	NPW, SCM	GC/MS/SIM, Extract or Dir Inj, Capillary	[SW-846 8270C]	Benzo(k)fluoranthene
Applied	No	NJ	SHW07.07594	NPW, SCM	GC/MS/SIM, Extract or Dir Inj, Capillary	[SW-846 8270C]	Dibenzo(a,h)anthracene
Applied	No	NJ	SHW07.07596	NPW, SCM	GC/MS/SIM, Extract or Dir Inj, Capillary	[SW-846 8270C]	Hexachlorobenzene

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Category: SHW12 – Immunoassay

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	SHW12.10000	NPW, SCM	Screening	[SW-846 4010]	Immunoassay - pentachlorophenol

Category: SHW02 – Characteristics of Hazardous Waste

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW02.02100	SCM	Burn Rate	[SW-846 1030]	Ignitability of solids
Applied	No	NJ	SHW02.10000	SCM	Extraction	[SW-846 1330A]	Metals - oily waste

Category: SHW04 – Inorganic Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	SHW04.02200	SCM	Acid Digestion For AA or ICP, Oil	[SW-846 3031]	Metals
Applied	No	NJ	SHW04.02500	SCM	Dissolution of Oil, Grease & Wax	[SW-846 3040A]	Metals
Certified	Yes	NJ	SHW04.03000	SCM	Acid Digestion, Soil Sediment & Sludge	[SW-846 3050B]	Metals
Certified	Yes	NJ	SHW04.03700	SCM	Chromium VI Digestion	[SW-846 3060A]	Metals
Applied	No	NJ	SHW04.03800	SCM	Field X-Ray Fluorescence	[SW-846 6200]	Triad Metals
Certified	Yes	NJ	SHW04.33500	SCM	AA, Manual Cold Vapor	[SW-846 7471A]	Mercury - solid waste

Category: SHW05 – Organic Parameters, Prep. / Screening

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	SHW05.03000	SCM	Soxhlet Extraction	[SW-846 3540C]	Semivolatile organics
Certified	Yes	NJ	SHW05.04000	SCM	Automatic Soxhlet Extraction	[SW-846 3541]	Semivolatile organics
Certified	Yes	NJ	SHW05.04200	SCM	Pressurized Fluid Extraction	[SW-846 3545]	Semivolatile organics
Certified	Yes	NJ	SHW05.05000	SCM	Ultrasonic Extraction	[SW-846 3550B]	Semivolatile organics
Applied	No	NJ	SHW05.05100	SCM	Supercritical Fluid Ex. TPH	[SW-846 3560]	Semivolatile organics
Applied	No	NJ	SHW05.05200	SCM	Supercritical Fluid Ex. PAH	[SW-846 3561]	Semivolatile organics
Applied	No	NJ	SHW05.05210	SCM	Supercritical Fluid Ex. PCBs and Pesticides	[SW-846 3562]	Semivolatile organics

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Category: SHW09 -- Miscellaneous Parameters

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Certified	Yes	NJ	SHW09.08100	SCM	Extraction	[SW-846 9023]	Extractable organic halides (EOX)
Certified	Yes	NJ	SHW09.16000	SCM	Mix with Water or Calcium Chloride	[SW-846 9045C]	pH - soil and waste
Applied	No	NJ	SHW09.19100	SCM	Pyrolytic	[OTHER Lloyd Kahn]	Total organic carbon (TOC)
Certified	Yes	NJ	SHW09.25000	SCM	Extraction & Gravimetric	[SW-846 9071 B]	Oil & grease - sludge-hem
Applied	No	NJ	SHW09.25100	SCM	Extraction & Gravimetric - LL or SPE	[SW-846 9071 B]	Oil & grease - sludge-hem-npm
Applied	No	NJ	SHW09.28000	SCM	Colorimetric, Field Test Kits	[SW-846 9077]	Chlorine - total, petroleum
Applied	No	NJ	SHW09.28100	SCM	Soil Screen Test	[SW-846 9078]	Polychlorinated biphenyls (PCB's)
Applied	No	NJ	SHW09.28200	SCM	Transformer Oil Screen	[SW-846 9079]	Polychlorinated biphenyls (PCB's)
Certified	Yes	NJ	SHW09.29000	SCM	Flow-Through Paint Filter, Observation	[SW-846 9095]	Free liquid
Certified	Yes	NJ	SHW09.39000	SCM	Soils, Ammonium Acetate	[SW-846 9080]	Cation-exchange capacity
Certified	Yes	NJ	SHW09.40000	SCM	Soils, Sodium Acetate	[SW-846 9081]	Cation-exchange capacity
Applied	No	NJ	SHW09.53000	SCM	Soil, Colorimetric Screen	[SW-846 8515]	Trinitrotoluene (2,4,6-)

Category: SHW12 -- Immunoassay

Status	Eligible to Report NJ Data	State	Code	Matrix	Technique Description	Approved Method	Parameter Description
Applied	No	NJ	SHW12.12000	SCM	Screening	[SW-846 4020]	Immunoassay - polychlorinated biphenyls
Certified	Yes	NJ	SHW12.13000	SCM	Field Immunoassay	[SW-846 4000]	Triad Immunoassay

Joseph F. Aiello, Chief

KEY: AE = Air and Emissions, BT = Biological Tissues, DW = Drinking Water, NPW = Non-Potable Water, SCM = Solid and Chemical Materials

## APPENDIX E

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### *PROJECT SCHEDULE*

